

LONGEVITY

SOURCES

— OF —

LONGEVITY,

— ITS —

INDICATIONS

— AND —

PRACTICAL APPLICATIONS.



Part I.

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Part II.

Entered according to Act of Congress in the year 1868, by the
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District of New York.



LONGEVITY.

2d Edition.

PART I.

BIOMETRY,

(THE MEASURE OR SPAN OF LIFE.)

A New Philosophy,

ANSWERING THE QUESTIONS:

Am I Probably Long or Short Lived ?

Can I Myself Know the Indications ?

An Exposition of the Laws of Life or Life-time, Exhibited in
Family Inheritance and Personal Indications of Longevity.

BY

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Author of "Systematic Physiology, Anatomy, and Hygiene," &c.,
and formerly "Lecturer at several Institutions."

FOLLOWED BY

THE TWO (\$500) PRIZE ESSAYS, ON THE
PHYSICAL INDICATIONS OF LONGEVITY,

BY

J. V. C. SMITH, M.D.,
Boston, Mass.

JOHN H. GRISCOM, M.D.,
New York City.

TO WHICH IS ADDED A

"BRIEF APPLICATION OF THE EXPOSITION AND ESSAYS;"

INCLUDING EXTRACTS,

"Striking pen-pictures of indications of impending incipient diseases,"

FROM A PAPER BY

C. L. HUBBELL, M.D., *Troy, N. Y.*

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PREFACE

TO THE SECOND EDITION, PART I.

IN this edition, such a change of the arrangement of topics has been made, that those that treat upon Life Insurance especially, are to be found in the second part; while in the first part will be found all those that treat upon the sources and indications of the natural length of life, answering to the momentous questions:

Am I probably long or short lived? Can I know?

This change is for two purposes: to enable those who are not interested in insurance to read what will certainly please all, and which has been called for so many times that there was evidently a demand for it by the Public. The exposition is the substance of the lectures given by Dr. T. S. Lambert, on the sources and indication of Longevity, that were heard with great satisfaction by many thousands last year.

Here the ideas are expanded, and illustrated more fully and may be deliberately studied, so that any one who reads them will find that with a little practice he will recognize as much difference in his fellowmen, in regard to the indications of the probabilities of a longer or a shorter life-time, as he now observes between men in size, complexion, or any other particular, since the indications of the length of the natural life-time are very plainly marked in most cases.

It is the intention of those concerned to make these two parts authoritative documents in regard to the topics of each, and they will be enlarged, amended, and revised, as the developement of these grandest and most important topics of practical life shall permit. To any one we shall be much obliged for hints or facts that will assist in our search after truth, for our object is not innovation or novelty, but development, and compensation will be paid

for any thing of value; as is witnessed by the fact that \$500 was given for each of the Prize Essays, immediately succeeding the 'Exposition.' Among those received in answer to our offer, these were decided to be the best; upon referring to the names of the writers, they were recognized as among the most conspicuous gentlemen who have adorned the Medical Profession. The Essay of one is classical, elaborate and exhaustive, though short; that of the other is more popular and extended, and while exhibiting great learning and observation, is attractive and instructive to those who are not familiar with technical language. Each presents a synopsis of the erudite conclusions of scientific men in a special direction, and both confirm the great practical doctrines of the Exposition.

It must be remembered that this is a new Philosophy. By this "expression" we would not claim too much; many of the facts have been often observed, and many of the deductions have been made, by even ordinary observers. Indeed, so apparent are all of our reasonings, that our conclusions at once receive universal assent. But the fact that most persons do not know the longevities of their ancestors, nor the diseases of which they died, proves that the value of such knowledge has not been duly appreciated. Our Philosophy has also a very wide and varied application—in the selection of vocations, of education, of partners, either in business or for life—in fact in all the most momentous concerns of life it may be made available. Shall we not then, with propriety, ask the indulgence of criticism, and the developing aid of every observer.

The well drawn pictures of tendencies to certain interesting diseases, from the graphic pen of Dr. Hubbel, will be read by unprofessional as well as professional men, with great satisfaction.

The truths of life we should not try to shun, but to know, then give to them a direction that will, to the highest possible degree, increase our welfare under the circumstances that are unavoidable.

The preface to Part II. will be found in connection with it.

AN EXPOSITION OF THE LAWS OF LIFE

EXHIBITED IN THE FAMILY INHERITANCE AND THE PERSONAL INDICATIONS OF LONGEVITY, AS APPLICABLE TO LIFE INSURANCE.

THE profound problems of the universe doubtless have more sublimity and grandeur than the subject before us. They do not, however, nor do any others, have or merit the power to attract and fix the attention that will be given to a discussion of the Laws governing the Family Inheritance and the Personal Indications of Longevity.

What, indeed, to any mind can be more absorbing, more intensely interesting, or more practically important, than the questions, Am I, are those to whom I am most intimately related, probably long or short-lived? and are there reliable indications sufficient to determine the probability?

The answers are to be found in the laws above referred to. The illustrations of their truth and of their practical applications are so plain and striking that they have often been the subject of observation and reflection. When a forcible illustration is suggested the reply frequently is, "I have often thought of that before."

Argument, therefore, is not needed, only a statement of the facts and inferences, and conviction is overwhelming.

LONGEVITY IS AN INHERITANCE.

To every living thing a life-time is set.

"Whatever may be the composition that surrounds the roots of a plant, whatever may be the nature of the atmosphere into which it rises, if it live at all, it must be as a plant of the species to which it belongs. Its absorbent and assimilative powers can extract from its surroundings only those elements that are suited to its own specific organization. It will preserve its color, its form, its fragrance; it will elaborate sweet or acid juices, fruits poisonous or wholesome, according to its nature. Where art has succeeded in disguising the form and fashion of its being, it will constantly tend to return to them. Its seed is in itself. Its growth, and shape, and products are prescribed. It cannot deviate from them without degenerating, and incurring the danger of final extinction. The vital forces involved in the germ can operate only in certain directions and modes; thus limited, they will under the right conditions develop into a type of being common to the species and peculiar to the individual." (Garvey.)

But one of the strongest and most peculiar characteristics, the entire measure of which every living thing strives most earnestly and persistently to fill, is its life-time. This is one of the most striking as well as most interesting facts or Laws of Life, especially when regarded comparatively; it will then be practically suggestive to a very eminent degree.

A life-time, like other characteristics of life, is inherited from parentage, and will vary accordingly.

Life-times Illustrated.

A peach-tree is short-lived, an oak is long-lived by inheritance. The long and short of each were in their seed, and derived from their parent stocks.

The seed of an apple cannot easily be distinguished from that

of a pear; but one inherits a power or potentiality to live an hundred years, while the other must die in a shorter time.

A robin is gray and noteless at ten or twelve years of age, while at a hundred the rook caws as lustily as ever. A dog is healthy while he lives, but reaches his old age in a few years.

A horse originates in a cell that under the strongest microscope cannot be distinguished from that of the ass; yet the latter inherits a capability of living to be much older than the former.

A mule illustrates, in a very interesting and remarkable manner, the strong tendency of longevity and great vital endurance to transmit themselves by inheritance. This animal, by partaking of the size and strength of the horse, and of the long life of the ass, suggests the idea that characteristics, especially such as longevity, very much preponderating in one parent over the other, control, in those respects, the organization of the offspring. The weaker the ass, the larger, stronger, and shorter-lived, and more horse-like the mule, which is also said to be toughest after it has passed the age of the horse—certainly a curious and suggestive fact. The inherited influence of the horse having expended all its duration of life and died, the ass only, on a larger scale, is left, not subject to any of the diseases of the horse, and having all the vitality of the ass.

Some of the Wonders of Cell Transmission.

It is wonderful to observe the effect produced through a portion of organized matter so small as the ass-derived cell, that co-acts in the incipient organization of the mule. Hundreds of such cells would not form a speck large enough to be seen by the naked eye; yet a single one contains that which transmits to and causes to grow up in the mule all the exhibited peculiarities of its sire, the ass, and confers upon the mule a capability of endurance for an hundred years. It is truly wonderful that so minute a portion of living matter can transmit such peculiarities.

In a cell so small that the unassisted eye would never know of

its existence, what is there, what can there be, that is so potent as to transmit, from generation to generation, the capability of enduring for an hundred, or only for a few years, as the case may be? It is strange, yet such is inheritance. Its laws elude the grasp and spurn the authority of the mechanical formulas of mathematics. These formulas may be very appropriately applied to the ruder carpentry or to the grander architecture of the world, but are entirely incompetent to determine the subtle forces of life, to measure their extraordinary results, or to define the methods of making a correct and practical use of a knowledge of them. For these purposes the entire resources of science have as yet proved insufficient.

The laws of inheritance, though understood in part, yet baffle the scrutiny of the best observers and thinkers, and only very gradually yield a modicum of their valuable and much-coveted truth. Their effects are so marvellous and fairy-like, that it is no wonder that the imaginative ignorance of past times attributed them to Sprites and Fays, whose magic influences were to be propitiated by supposed honors, or warded off by the potent horse-shoe nailed over the stable-door or to a post of the breeding-pen.

Microscopic Cells also the Isthmus between Human Generations.

As it is in the vegetable and in the animal world in regard to inheritance, and being a necessity of all life, so it must also be in case of man. "*Omne vivum ex ovo*," (every living thing is produced from an egg,) is an old doctrine of science. By egg is meant not what is usually so called, but its minute cell, in which life first manifests itself, and which, in many cases, constitutes the entire egg. This cell is produced by the union of two cells, male and female. From such a cell, every living thing originates and derives its characteristics. An eminent medical man has said, that the millions of cells from which all the American people originated,

might be held on a single thumb-nail. Through such a narrow strait passes whatever is inherited by one generation from another. Here the whole problem of a living being is reduced to its narrowest dimensions. Here science first discovers animation apparently in its simplest form of incipient organization; yet this cell must be complex. It is so to a degree beyond comprehension.

It is inconceivable that all the powers, abilities, peculiarities, varieties, and similarities, of more than thirty millions of people, could be individually represented in so small a space; yet each cell, however small, must have differed from all the rest of the millions, since no two have produced precisely similar results. Groups of these cells must have been very similar, for they have produced decided family resemblances. These facts are almost past belief, and altogether exceed the magic of the Arabian Nights; another proof that "fact is stranger than fiction."

A grand and very fruitful conclusion is reached by observing that each living thing transmits only "after its own kind." The reason is, that the male and female cells of different species will not unite except in the very limited cases in which hybrids are produced. This conclusively proves that characteristics, if they exist, must be inherited from the stocks in which they previously existed, or be produced by the combination of forces derived from two like stocks. If, therefore, characteristics do not exist in the stock, or are not potential in it, viz., cannot be produced by the combination of the male and female cells, they cannot be found in the offspring. Abundant illustrations of these doctrines may be found in regard to general or special characteristics. A negro in Virginia has two thumbs and five fingers on each hand, and seven toes on each foot; and though his negress has not any extra digits, his children have as many as he. In one family a peculiar form of finger has been historical for three hundred years. In another a peculiar thumb has been handed down for generations, etc.

National Inheritance of Longevity and Health.

But it is especially desirable to adduce illustrations of the national inheritance of health and longevity, and the mode of determining where it probably exists.

The Jews afford an exceedingly interesting and very extraordinary illustration of the national inheritance of longevity. They have the most extended "expectation," or average length of life, of any people upon earth. They also illustrate in the most expressive manner the value of inheritance, intelligence, and sobriety, in producing and promoting longevity and good health, in every part of the world, since they everywhere enjoy both to a very remarkable degree. It may be said that their longevity results from the preservation of health by intelligent care, and a wise promotion of correct habits. But it may with propriety be asked, if longevity is not the cause, rather than effect, or, at least, if the causes of care-taking and sobriety are not the same characteristics that produce longevity?

The Jews also most forcibly, and very instructively, illustrate that the blessing of longevity, combined with industry and economy, must necessarily have fruition in thrift, acquisitions, and accumulations.

It costs no more to "raise" a man capable of living for eighty years, than it does to "grow" one who has not the capacity of living to be forty years old, in which time persons do not average to more than pay their cost. In another twenty years he would acquire largely; in still another twenty, if he only averaged to earn his yearly expenses, his acquisitions would become fourfold accumulations. In such a case, therefore, both "a penny is earned, and twopence saved."

The thrift so universally attributed to New England people, and its consequent accumulations, have their essential elements in the remarkable longevity and hardy health of the citizens. Neither

their ingenuity, perseverance, intelligence, nor other like characteristics, would suffice to produce such results; though, as before suggested, these presuppose longevity, or, to say the least, are usually found associated with it.

An average of ten years added to the "life-time" of an individual family, or a whole people, combined with other characteristics usually associated with longevity, will, in the course of several generations, produce immense accumulations, compared with what can be attained by a shorter-lived people, under even much more favorable circumstances.

The Friends, often called Quakers, are an affirmative and very illustrious instance of the same truth. Their longevity and excellent health, their thrift and accumulations, so conspicuous and so general as to have become proverbial, speak of the inheritance of long life, sobriety, and intelligence in the strongest and most favorable terms.

Thus longevity, health, and sobriety are essential elements of personal, family, and national prosperity and affluence, which also are vastly increased by longevity inherited through several generations. Except for wars, the results would be truly amazing. Wars are the bane, and longevity the blessing, of mankind. Wars breed diseases, destroy life before it has paid its cost, produce and sustain an aristocracy, eat up the savings of longevity, and are the curse of the earth. Longevity, peace, and liberty would bless all the world with abundance. Nothing like affluence can be expected in case of short-lived generations, either of families or nations.

The Esquimaux are a very short-lived people. They rarely become older than forty years of age. Yet they are a very healthy and vigorous people during their meridian of life. But what chance of success would a life-insurance company have if it should insure them upon the basis of the ordinary tables?

Family Inheritance of Longevity and Health.

Every one has noticed that nearly all the members of some families die aged, while those of others are gone before what would be called the middle age of the former. It is a common and correct remark, that "some are as old at forty as others are at sixty;" the latter will, in fact, be more likely to live twenty years than the former, and be better risks to insure. The years a person has lived, is by no means the most important element for judging how many he may probably live. Nor is present health of much more consequence; since it is often the case that families are very vigorous and healthy while they live, yet are not long-lived. They inherit healthy but short lives. Notice the Laplanders. Observe the citizens of Zurich, Switzerland, very healthy, but seldom reaching the age of sixty; while members of one Italian family living in their midst since the sixteenth century, reach the age of eighty or ninety. The Welsh are the longest-lived people in Europe. The Scotch are longer-lived than the English, and the Irish shorter-lived; yet they are all healthy as a people.

On the other hand, some who do not have robust health are noticed to live long; it is said that they attain old age because they take such excellent care of themselves. Yet, though it is not denied that the care is useful, it will be usually found that they had at least one probably long-lived parent, and thus inherited longevity from one side if not from both; for though it is often the case that those die young who have long-lived ancestry, it is very seldom that any person lives to be more than a year or two older than any of his ancestors,—parents, grandparents, &c.

It is hardly worth while to remark, that most of those now sick will recover, and that their places will be taken by those who are well. The inheritable relations of diseases must be regarded as of chief importance; for the most part, those diseases that will produce probable short life are inherited, or at least their causes are.

It is also observable that little sickness occurs in some families while in other families there is much sickness as well as many early deaths.

Three fifths of the families in ordinary communities pay ninety-nine hundredths of all the doctors' bills. The remaining two fifths include the chief part of the long-lived families, and are mostly composed of them. They are long-lived, not because they do not employ the doctor much, for they do call him when necessary, but they do not often need his services because they inherit longevity, and healthy, vigorous, disease-resisting constitutions. A quack once said that he made his reputation by "practising only in long-lived families," being careful to do no harm, and always managing to excuse himself from going when sent for to attend the "short-lived breeds," as he called them.

As a law of family inheritance, it is expected that a child will be affected by diseases similar to those of its parents; as a rule, a boy by those of the mother, a girl by those of the father. Shall they not from each, equally inherit health, vigor, and longevity, if possessed? " * * * visiting the iniquity of the fathers upon the children unto the third and fourth generations," is a part of one of the Commandments, also indicating that the virtues of the fathers shall bless their children. Therefore, the expression from the Commandment has a double application.

It is evident that "fathers" means more than parents, because effects are mentioned as produced through four generations. It is a fact that in regard to longevity persons take "after" grandparents more often than "after" parents.

"Like begets like." "Old age runs in the family." "They never die." "Long-lived stock." "A tough race." "Takes after his father." "Has his mother's constitution," and a thousand like proverbs and expressions handed down from remote antiquity prove that in the universal opinion of mankind, a family inheritance of

physical characteristics, particularly a capability for longevity, is reliable beyond a doubt.

Important Practical Suggestions.

If a person inherits long life from one side, and short life from the other, he has, so to speak, two or more longevities, and will be very likely to show some signs of weakness toward the close of the shorter ones, and unless careful may even die at that time. The short-lived blood from either side will die out about the period of the exhaustion of its longevity. If a person passes this point safely he will improve in health and live on, if favored, until the remaining force inherited from the other side is exhausted. Boys will have more difficulty, as a usual thing, if the short life was inherited from the mother's side, and girls will experience more danger if the short life is drawn from the father's side.

Every hybrid of longevities should understand this matter, for by extreme care many who will succumb might successfully pass the crisis.

MEANING AND VALUE OF "FAMILY EXPECTATIONS." *

If all the members of a family (grandparents, parents, uncles, aunts, in brief, all relatives whose longevities can be learned) have lived to and deceased in the same year of age, (such cases do sometimes occur,) would not every one expect that the younger members of that family would, under ordinary circumstances, live to the same age? They may die younger, but they will not be expected to live to be older. Cases more frequently occur, in which nearly all have lived to the same age. They are more numerous where all the mature members have deceased within five years of the same age, while most of the members of most long-lived families de-
cease

* "Expectation," used technically, includes in its meaning four ideas: 1st, an average of life from a given age; 2d, of a large number of persons; 3d, in different localities; 4th, the persons being similar in one respect or more.

within ten years of the same age. It is exceedingly interesting to notice the very great number of instances in which whole families de cease at very nearly the same age, some very old, some at middle years, some at early years, but all of them old for the family; that is to say, the members of each family had lived out the days allotted by their inherited constitutions. In many cases the periods of death in a family are scattered along from infancy to the old age of the family.

The average age to which the members of a family live is called the "family longevity." For example, suppose that nine members of a family had died between 60 and 70, one in each year: they would have averaged 65 years; that family longevity is therefore 65.

The number of years from any age to a longevity is called the "expectation" of that age, and to a "family longevity" is called a "family expectation." For example: in the case of the family above mentioned, a member 30 years old would be said to have 35 years' "family expectation," since there are 35 years between his age and 65, the "family longevity."

Family Assurance.

The family "expectation," or "average," is not of course the limit of the lifetime of all its members. A person may inherit and foster an ability to live as long as the oldest person in his family. Indeed, although the male and female cells may have been derived from comparatively short-lived parentage, it is possible for them to possess such characteristics each, that by conjunction something more perfect than the source of either shall be the result. Precisely how this is, cannot be said, but it would naturally be supposed that if each cell chanced to have certain excellent characteristics of which the other was the exact complement, a rare perfection would occasionally be produced—such as longevities of one hundred and fifty years, etc.

Sometimes the cells are such bad complements of each other that, although the parentage is good, the offspring is inferior and dies young.

On the other hand, the best lives may be cut short at any breath. Nothing is more certain than death, nothing more uncertain than its time. "He calls all hours his own." At one time he casts his dark shadow across the path of the weak, but at another it is thrown upon that of the strong. He darts his arrows between the greaves of the mighty as well as smites down the unarmed. He mocks at the sinews of the healthy as well as dries up the marrow of the sickly. No shield is a perfect protection. Achilles was not invulnerable.

But though neither single nor united strength can resist the attacks of the "King of Terrors," some of the grievous evils too frequently produced by his visitations can be forefended. And though no person, however judicious and shrewd, can singly provide with certainty for his family, yet "in union there is strength" against all the bitter *pecuniary* troubles so often attendant upon the early removal of a husband or father, and from which danger not any family is exempt, except by this union and its consequent strength, which are found only in Insurance. Nothing earthly is better than for every family to take from its abundance, or to economize from its scanty means, the premiums for a reasonable Assurance; thus making certain a pecuniary support when unfortunately its best dependence is removed.

"Life" is an unpropitious name for this Assurance. It is not based upon nor related to the life nor to the death of any person, only as that is related to the necessities of the family. It should be called *Family* Assurance. It is made for the benefit of the family; its premiums should be provided from the funds of the family; its payment is made dependent upon the contingency in which every family, for one reason or another, will always find it

desirable ; and all the members of every family should scrupulously, even religiously, care for and sustain it, as its choicest blessing.

PERSONAL INDICATIONS OF LONGEVITY.

It is easily observed, that in many families there is such a difference in the longevity of the different members, that the application, for any practical purpose, of the "family longevity" or of the "family expectation" to the individual members would be very inequitable.

In some families, for example, all are strong and long-lived except one, who is puny, sickly, and dies young. His short age will serve to reduce their "expectation" if an average is taken ; but their probabilities of life will not be lessened because one such child is born in the family. Again, in other families all the boys are robust and the girls weak ; or *vice versa*. Or in other families some of each sex are frequently sick, while some are rarely unwell.

It will be observed that in such families the ancestral blood on one side is long-lived, and on the other short-lived, and according as the children "take after" one side or the other, so will their vigor and longevities be.

Personal "Expectations."

Although, therefore, "family expectations" are based upon the reliable Laws of Life as exhibited in family inheritance, the family longevity must be affected, indeed must be produced, by the individual capacity of its members for longevity.

A person has longevity not merely because he was born of parents who had it, but because he has received from them some certain characteristics, which he retains. If they do not pass to him, or if he does not retain them, he will not be capable of attaining longevity. Cases may also occur, as has been shown, in which, by the combined influences of the male and female cells, longevity may be produced in the offspring when it was not possessed by either of the parents.

We come then to this—

A knowledge of personal characteristics natural and acquired, their interpretation, meaning, or indications, is essential to a judgment upon the probable length of life of an individual.

The great question is, therefore, Are there Personal Indications of Longevity that can be easily discerned and determined?

This is a matter of immense importance. A person may state that longevity existed in his family. If in excellent health, he may attempt to misrepresent other vital facts. Are there indications that will surely betray his deceptions?

A party may honestly think he inherits a longevity that he does not; his case may have been misstated to him; history abounds in illustrations of surreptitious infantile exchanges; imputed parentage is not always reliable.

In a family known to the writer, both parents are alive and old, they have not had a relative affected with scrofula, except their children, all of whom, nine in number, died of consumption before middle age. The influence of the similar extreme temperaments of the parents combined to produce weakness in the children. Certain syphilitic taints in parents are said to affect their children sometimes still more than they did those in whom they originated.

Can inspection determine if one or both parents of a child were short-lived, or which parent it resembles in regard to diseases, or, though now enjoying good health, if it has failed to inherit the longevity of its parents, or if it has that which its parents did not have; in short, what probable longevity it truly possesses?

It is believed most confidently that indications do exist and can be discerned, by which the capabilities of the constitution in regard to longevity can be determined. There is no marvel if it should be so. It would be strange if it were not so.

Familiar Proofs.

Who does not, by looking upon the face of a man, judge instantly

in regard to his health? By the expression of the countenance, by the peculiar moans and cries of the patient, and in other similar ways, does not the skilful and experienced physician at once recognize many deep-seated diseases?

The doctor feels the pulse not merely to learn how the blood is pouring down into the hand, nor merely to learn how the heart is beating, but to learn the condition of those more hidden nervous centres, the vitalizing, constitutional forces of which preside over the action of the heart and over all the other parts of the body.

The parts seen are dependent for their daily life and power upon parts unseen; in fact, the outward parts were, so to speak, drafted, planned, and built up by those unseen nervous centres that existed before the other parts, and influenced their constitution.

Instructed by this idea, the learned Cuvier, when a few bones were brought to him from a newly discovered cave, made out the structure of the entire animal. He knew that all parts of the creature must be constructed upon one and the same plan, and his experienced eye, by observing a single bone, at once recognized what that plan was, and thus disproved conclusively the theory of some, that the bones were an accidental or chance formation.

In the same manner, from the traces of a small part of an animal that lived thousands, perhaps millions of years ago, geologists are constantly and correctly inferring what its entire size, form, adaptations, and habits must have been; and their inferences are as often confirmed by discovering the fossil relics of the entire animal.

With but little knowledge any one can infer from the structure of a single tooth what kind of a stomach the animal to which the tooth belonged must have had, and upon what kind of food it must have subsisted.

Nervous Centres the Sources of Longevity.

As the nervous centres in the first organization of the body were

the cause, and the outer parts the effects, and as these are constantly sustained and rebuilt by the cause, viz., the nervous centres constantly in action, why may we not look at the effect as an index to the condition and the capability of the cause? It is reasonable and common sense to do so, and by observation to learn to read the probable length of our days as thus exhibited. These indications were doubtless intended by the all-wise Creator to be a source of instruction to man on this exceedingly important subject.

It is certain that those accustomed to observe animals will know their capabilities by inspection. They can tell if a heifer will make a good milker, and whether for butter or for cheese, and if at last she will "take on fat" readily. They judge if lambs will produce much wool, and of what quality, or if they will be "meaty," readily fatten, &c. Every one knows that an experienced jockey will by inspection alone determine all the points of a horse, his speed, bottom, endurance, longevity, breeding qualities, &c. The celebrated horse Hambletonian has never produced any swift mares, as was predicted; nor can he do so, for reasons that are obvious to the skilled observer; on the other hand, as was also prejudged, some of his male colts are the swiftest in the world.

To learn how to estimate the probable longevities of men by observing the appropriate indications, is easier than it is to become familiar with the indications exhibited by animals, because men can talk.

But there has been no interested motive inducing a large class of persons to study healthy men, as the horse has been observed. His points, both in general and in detail, have been so closely noted and diseussed, that a glance over him by a skilled eye will describe him as faithfully as an old acquaintance can do it.

Many whose business has often brought them in contact with

the world, become very shrewd in discerning the ways of men, their character, etc.

*The few who have made observations upon the indicated length of life of men have been guided by a fondness for prosecuting scientific investigations, rather than by a desire to attain any practical result. They have had to contend with the prejudices of the ignorant and against accepted dogmas; and as the first steps of any new pursuit cannot be very steady but must be wavering, and consequently open to ridicule, and as there was no very decided object in view, but little advance has until now been made towards a correct, scientific method of determining the probable lifetimes of different men by their personal appearance at various ages.

But now, when the problems of Life Insurance demand that the indications of the probable lifetime of each man shall be read distinctly and practically, and when money is to be made or lost accordingly,—it is probable that the study which the subject so richly deserves on its own account will be bestowed upon it for pecuniary reasons, and the most gratifying results attained.

It must be remembered that often indications which seem to be of little moment, are of great consequence as indicators, while other things of really great consequence are less important in that respect. Every one says a large and mobile chest "is a good sign." It is more, it is good in itself.

Interesting Facts.

We may digress a moment to consider the chest, as it suggests several very interesting and valuable thoughts illustrative of the controlling influence of the nervous centres. Usually great stress is placed upon the expansion of the chest, as an indicator and as a real value, found by measuring around it. But often it will happen that there is but little lateral expansion of the chest, yet very full breathing. The walls of the abdomen, including the over-

aching diaphragm, as well as its sides and front, are very active and expansive. Many persons, like certain animals, breathe almost entirely and very abundantly by the action of the abdominal muscles. Again, in measuring the expansion of the chest it is desirable to learn the extent of motion on each side of what may be called the deadpoint, or the point of quiescence of the chest. In some persons the expansion of the chest is from this point upward, and in others the motions of the chest are below this point; while in many the movement is but little upon one side of "the centre," and more upon the other.

If the body is constructed harmoniously, and the chest and abdomen properly proportioned, there will be an equal motion of the chest above and below its medium, centre, or quiescent point, and also a free action of the abdomen in breathing.

Again, in women, breathing is accomplished by the expansion of the upper part of the chest more than is the case in men. In women the ribs naturally incline down more than in men, producing a tapered waist. This they very injudiciously contract by means that men, who can breathe but little with the upper part of the chest, could not endure. But when women are pregnant and need more air than usual, and the action of the abdomen in breathing is prevented, the superintending nervous centres cause the ribs, naturally much inclined downward, to rise upward and spread outward. This action does not occur as a result of the growing contents of the abdomen pressing out the ribs, as is sometimes thought, but is an illustration of one of the many beautiful adaptations brought about through the compensating influences of the nervous centres. By this increased breadth of the chest of pregnant women and the mobility of its upper part, the volume of air breathed is appropriately increased, and no sense of suffocation is produced, as there would be if the chest of woman was like that of man. The shoulder-blades, resting as they do upon the ribs, are also raised,

carrying upward and outward the shoulders, thus giving increased space for the organs of lactation, and an increased leverage to the muscles of the arm, which, by the way, grow strong without exercise, anticipating the demands upon them. The ribs do not, nor should they, fully subside at once after the birth, as would be the case if they were raised merely by internal pressure. They return completely to their former positions only when lactation is passed.

This view of the chest illustrates the absurdity of having any routine, arbitrary rule, such as the number of inches' expansion, etc., or the proportion of weight to the height (which should vary very much according to the constitution, age, season of the year, exercise, clothing, etc.,) or any other mathematical rule, upon which to base any reliable judgment as to the vigor of the constitution. All the facts must be taken into consideration, and a thoughtful, intelligent judgment formed in accordance with them. How much air does the person breathe, and how much does his system require, are questions, the answers to which will determine the relative value of his breathing.

A hundred similar and equally interesting illustrations could be given of the influence of the nervous centres, especially in the case of injuries and diseases.

Can there be a doubt of the adapting, harmonizing power of the nervous centres? They adjust each part to the condition of every other part, and of the whole. Not a hair is straight, nor curled, nor light, nor dark, nor does any other, even the slightest peculiarity exist, except as dependent upon the conditions of all other parts of the body as expressed through the influence of the nervous centres. The ancients had a saying, "*ex pede Herculem*" (from his foot know Hercules); meaning that a part of a harmonious whole, indicates the whole. So could an eye sufficiently experienced, skilled, and wise, discern through any, the least part of the

body, the necessary conditions of all parts; for the condition of the least part would indicate the character of the nervous centres, which being thus known, the conditions of all other parts could be inferred.

Another Illustration; the Trunk.

Dr. Smith has very eloquently shown, in his Essay, that the comparative length of the trunk of the body is a very good index of longevity. He is believed to be the first to notice this interesting, practical fact. Persons, the trunks of whose bodies are short, are not necessarily short-lived, as some such do live to be old. Their number, however, is comparatively small. On the other hand, those in whom this part of the body is long, absolutely or comparatively, are derived from long-lived parentage on both sides, and enjoy a rich promise of old age. An exception to this has not yet been noticed; it is, therefore, when present, one of the most valuable positive indications.

Why it is so, Dr. Smith most admirably sets forth in his own clear style.

Another Illustration by the Temperaments.

“What are Temperaments?” Usually they are thought to be something very indefinite to observe, and not clearly to be described. But rightly marked, they are very valuable as indicators. They evidently belong to all parts of the body, similarly affecting its appearance throughout. They must then be associated with, or dependent upon, either the vessels or the nerves, or both, as these are the only organs that are found in all portions of the body. There are four kinds of vessels in the body—arteries, veins, capillaries and lymphatics (the latter not in the brain or nerves).

One or more of these usually predominates in a person, correspondingly marking and naming the temperaments, as follows:

1st. Arterial or sanguine; complexion fair, hair light, eyes blue—action mercurial, vivacious or quick.

2d. Venous or bilious; complexion, hair, and eyes, dark—action deliberate or slow.

3d. Capillary—depends upon the arterial, but exhibits facts to be distinctly classed. This temperament is chiefly distinguished by a natural redness of the skin, “tendency of the blood to the surface;” which also has a tendency to the inner surfaces, causing inflammations, apoplexies, &c.

4th. Lymphatic—an appendage of the venous, but in important respects distinct;—favors quiet, deposit of fat, etc.

5th. Nervous—not properly a temperament, except taken in connection with its influence upon the four proper temperaments, though it is often spoken of as the chief.

The nervous centres, as has been said, are the architects that construct, the engineers that superintend, the organism; the vessels are the means, or active channels through which its construction and maintenance are effected. The temperaments, therefore, refer to, or name those conditions, proportions, and relative actions of the various parts of the body exhibited through, and dependent upon, the four kinds of vessels everywhere existing in it.

The indications obtainable by observing the temperaments are very valuable in regard to longevity, as they also are in regard to the kinds of diseases to which a person is liable, and the residences where he is likely to be affected by, or free from, them.

When the temperaments are equable, the greatest confidence may be felt that, circumstances favoring, old age will be reached

Such must have been Shakespeare’s hero, of whom he says:

“All the gods had set their seal upon him.”

It is not, then, merely the vital organs or functions that are worthy of a careful notice. Whatever illustrates the composition of the temperaments in a person—and each part of the body does this—is not only not contemptible, but, in the hands of one who knows how to use it, becomes a true instrument of science.

Mere Indicators.

The colors of the eyes are of no especial account to the constitution, for both eyes may be removed without material injury to it. The colors are only an effect in common with many others produced by the same cause. They are valuable as mere indicators. The reasoning is as follows.

There are but two colors of eyes*—brown and blue of all shades,—corresponding to, or produced by, the two grand temperaments, the bilious, venous or slow, and the sanguine, arterial or quick. When the temperaments are admirably blended throughout all the organs of the body, of course they also must be in the eyes, mixing the brown and blue, and producing the beautiful hazel, nearly, if not always, associated with a long-lived ancestry, a very sound constitution, and, as ought to be the case, the best of health. It is not to be understood that great longevity exists only in connection with hazel eyes. Brown and blue eyes are also found in the very aged. The black hair, very dark brown eyes, dark bilious complexion, and dark beard of the Jews, are usually associated with very long life, while the Saxon hair, blue eyes, and fair complexions of the Germans are also associated with great longevity. The Scotch also are remarkably long-lived. A kind of watery, weak, or thin color of the iris, either blue or brown, is suspicious; while a pure, clear, deep, bright color is a strong indication of long life.

(An Important Parenthesis :

Let it be here noticed that the colors of the eyes do not radically change during life; if blue or brown at birth, they are so until death. As this color is dependent on the temperament, this proves that it does not change during life; as it is in a person when

* It may be said that brown is not a primary color, but as it is associated with and indicative of the bilious temperament, it is made to contrast with blue. It may also be said that the blue and brown mixed in the eyes makes a third color, viz., all shades of hazel. Let it be so, if it is preferable. The facts and their indications will be the same.

born, so it is through life ; *proving that neither care nor any other circumstances nor condition can radically change a person's constitution, which therefore being born to a person for life, is dependent upon the characteristics of the germ-cell, and therefore upon inheritance.*)

Mere Indications Continued.

It has been known from time immemorial that the ring often noticeable in the iris of old people, and hence called the *annus senilis*, is indicative that decease is approaching. This mark first appears in one side of the iris, and is then called the *arcus senilis*. When this has appeared, it is always safe to grant an annuity ; if it has not, no matter how aged the person is, it is not safe to grant an annuity as to a person at his actual age ; he should be "rated" younger in age, which, of course, will increase the premium for a given annuity.

The colors of the hair, eyes, and beard compared, are exceedingly good indications of the longevity of a person, and of his ancestors upon the side he most resembles. A physician of great experience, and also as an examiner for Life Insurance, remarked that he seldom if ever saw a person with very dark hair and beard, light eyes and pale skin, who was not inclined to consumption, and would not die of it sooner or later unless prevented by some other disease. If the colors are according to rule, there will be no exception to the probable longevity of the party. If the colors are irregular, they do not always indicate short life in the party. For example, if a person having a brown iris has a narrow blue ring at its outer margin, it always indicates that there has been short life in some of his ancestral blood, yet this may not affect him to the degree of very much shortening his life, for the longer-lived blood in him may overcome the shorter.

A horseman always looks at the nostrils of a horse to determine his "wind," and if they are broad, lively, and bright-colored, he at once correctly judges that the respiration is perfect. Why should

not a large nose with wide-spread wings, indicate a similar condition in men, especially as pinched nostrils are always suggestive of lung diseases? If large nostrils are not always found in ease of the long-lived, they are seldom if ever seen in ease of the short-lived. If small nostrils and other features sometimes exist in the long-lived, they are almost, if not quite, uniformly to be seen in the naturally short-lived, in whose ease a Roman nose can rarely if ever be seen. Large nostrils are the useful parts of a nose. It is the size of these that indicates the development of the lungs, and it is doubtful if any person with small nostrils, who has reached a very high age, can be found.

All know that sound, yellowish white, unecheeked teeth, indicate a good constitution, while; if they are bluish white, the probabilities of sound health are diminished.

A peculiar red color or a spongy appearance of the gums is also a very decided serofulous indication of short life.

Thus there are many minor indications, no one of which is decisive. But when several of them, and especially when all of them suggest the same conclusion, there should be no doubt.

A Striking Suggestion ; Decided Indication.

It has been well suggested, that we may make observations almost directly upon the nervous centres themselves, upon which the duration of life fundamentally depends. The centres particularly controlling the vital force and endurance of the constitution are supposed to occupy the front, central, lower portion of the brain. It has therefore been suggested that the volume of these parts will determine their power, and that their volume can be judged by observing the depth of the orifice of the ear (which is nearly on a line with the base of the brain) below a line drawn around from the outer angle of the eye-brow to the occipital protuberance, or in general terms, the depth of the orifice of the ear below the level of the eye-brow; the breadth of the head in front of and a little

above the orifices of the ears, is another indicative measurement. It is also thought that the depth before mentioned has relation to derivation from the mother's side, and the breadth to derivation from the father's side. If these should not prove reliable to the entire extent that some believe, there is certainly sufficient testimony in their favor to warrant farther observations, and to show that they are not visionary. It is certain that all artists, from the most ancient times to the present day, lay down the rule that in modeling or painting typical men, the tip of the ear must not be above the level of the eyebrow. This would allow a very large space to be occupied by those vital nervous centres that are thought to influence the length of life.

Whoever will observe very old people, or the pictures of those who have lived to be very old, cannot fail to notice the marked depth in the region indicated. It only remains to be as clearly shown that this depth does not exist in any who are naturally short-lived. It has not thus far been noticed in any such.* It should not be thought unimportant to recall the common remark, that persons with ears set high have shallow and other corresponding characteristics. This popular notion is seen to be philosophically supported.

Nervous Centres Influence the Mind. Mental Indications.

Again, as the nervous centres produce a harmonious constitution of different parts of the body, is it not natural to suppose that, on the other hand, they would exert a corresponding influence on the mind?

Indeed it is observable that, unawares to themselves the nat-

* It is believed that Dr. Powell, of Louisville, was the first to draw attention to the depth of the orifice of the ear below the line drawn from the outer angle of the eyebrow to the occipital protuberance, as being a comparative measure of the lifetime of persons. It is a valuable suggestion.

urally short-lived have an impression, a kind of shadowy fear, that they cannot live to be old, while the naturally long-lived have just the opposite feeling. It is often said that persons, soon after retiring from business, lose their health because of such change. On the other hand, did they not retire forewarned by an instinct? Others retire for other reasons, and yet live on.

The mind is unwittingly impressed with the capabilities of the body, and the whole conversation partakes of a confidence or a distrust in long life. One person speaks of his parents as having attained old age although they died at fifty or sixty, those ages seeming old to him. Some will not be able to remember anything about their grandparents. Such may be set down as short-lived, and not as of short memory. The other day a gentleman, writing about the ages of his family, remarked in perfect simplicity that his "mother is living in full vigor at eighty-six; father died a few years since at eighty-four, prematurely (!) killed by an accident." Though the writer was fifty-four, that single expression of his thoughts showed that for insurance purposes he was yet a boy.

Some vocations, such as shoemaking and tailoring, are considered as tending to shorten life remarkably. Yet in some villages nearly all the inhabitants are, and for several generations have been shoemakers, and are as long-lived as the average of men, some living to an extreme old age of eighty, ninety, and upwards, daily pursuing their vocations.

But where various vocations offer to persons a choice, ought not the short-lived to choose those trades that are learned in a short time and carried on by means of a small capital? It is a fact that in such circumstances few persons in such trades have long-lived ancestry, or other indications of great longevity, while blacksmiths, machinists, and the like, usually do have both. Those who contentedly choose and continue in clerkships usually have most of the indications of short life, while business men, especially those

engaged in such kinds as require years for accomplishment and success, are usually, if not always, of long-lived stock.

Most printers are of short-lived stock, yet those who become Publishers, Editors, Managers, &c., are usually of very long-lived blood, and are themselves long-lived. Why do they leave the others behind, or rather, why do the others allow themselves to be left?

Real Genius Usually Long-Lived; an Indication.

Statesmen, historians, men of science, and others who enter upon tasks requiring long life for their accomplishment, are of long-lived ancestry as a rule, probably without exception.

Short life can produce the genius and champagne poetry of Byron, the effeminate effusions of Pollok, or the ravings of Poe. But the Shakespeares and Miltons, the Newtons and Leibnitzes, the Humboldts and Mullers, the Gibbons and Humes, the Washingtons and Jeffersons, the Franklins and Clintons, the Websters and the whole host of others, ancient and modern, who have achieved greatness for themselves, or greatly blessed mankind, have been those who have enjoyed the rich inheritance of great longevity, and usually also vigorous physical constitutions.

Indications Reliable.

These few, of very many illustrations that could be given, must suffice for the present purpose of convincing the reader that by a person's weight, height, figure, and proportions, especially of the features, by the *color and quality of the skin*, hair, and beard, the color of the eyes, by the teeth, bones, muscles, and the actions of the last named, by the voice, breathing, pulsations, etc., abundant indications are shown that by themselves will enable a skilful person to form a very good "judgment upon the personal expectation of an individual."

But these indications *in connection with the family record*, present

health, habits past and present, residence, vocation, intelligence, and the *instructive instincts* of the person himself, shown in various ways, desiring to insure speculatively for large amounts, in case of the short-lived, and for annuities or "income" in case of the long-lived, etc., will yield as good and reliable grounds for estimating the "personal expectation," in case of a thousand similar persons, as is needed for any practical purpose.

Indications Confirmed by a Distinguished Author.

Lest it may be suggested that too high an estimate is placed upon the personal indications of longevity, to show that the matter is not entirely a novelty, but has occupied the thoughts and been the subject of the observations of some of the most learned men with great practical profit, and to confirm any doubtful mind, we will take the liberty of making an extract or two from "Human Life," a recent very interesting work, by which Dr. Sweetzer has much increased our indebtedness to his talents and learning.

"The prerequisites of longevity, it will be understood, are a frugal, sober, temperate, moderately active life; regular, tranquil and sufficient sleep; a peaceful unaspiring disposition, with a spirit cheerful, contented, and not over sensitive to the common cares, vexations, and annoyances to which every human being must be, to a greater or less extent, exposed.

"The indications from which long life, or the power of long life, are to be inferred, are, a descent from long-lived ancestors; a tranquil and happy temperament, and that general symmetry of physical conformation, or that harmonious proportion of the different parts and organs of the body, denoting health and vigor; a well-formed and well-developed chest, with sound respiratory organs, and corresponding power of breath, and strong voice; a heart whose action is vigorous and tranquil, and not easily disturbed, betokened by a regular, energetic, moderately frequent, and not readily excited pulse. Strong recuperative, or restorative forces, as evidenced by a

facility in recovery from injuries; sound teeth, and good powers of digestion; a stature of medium height and proportions; head of moderate size; neck not what would be accounted long; general texture of body firm; skin not over-delicate, nor too fair and excitable. Gradual and slow development, as a general rule, though not wanting in exceptions, betokens length of days."

These views are not new. Dr. James Mackenzie, an eminent Scotch physician, who wrote *about a hundred years ago*, has the following remarks pertaining to longevity:

"Longevity may proceed from nature or from art, but chiefly from their happy conjunction.

"The natural marks by which we discern that a man is made for long life, are principally as follows:

"1. To be descended, at least by one side, from long-lived parents.

"2. To be of a calm, contented and cheerful disposition.

"3. To have a just symmetry, or proper conformation of parts, a full chest, well-formed joints and limbs, with a neck and head large, rather than small, in proportion to the size of the body.

"4. A firm and compact system of vessels, the stamina not too fat; veins large and prominent; a voice somewhat deep; and a skin not too white and smooth.

"5. To be a long and sound sleeper."

Lord Bacon remarks:

"To be free minded and cheerfully disposed at hours of meat, and of sleep, and of exercise, is one of the best precepts of long lasting. As for the passions and studies of the mind, avoid envy, anxious fears, anger, fretting inwards, subtle and knotty inquiries, joys, and exhilarations in excess, sadness not communicated."

How to Observe Indications.

Anyone who is accustomed to observe people with reference to their capacity for living, reaches his conclusions so easily and rapidly

that it appears to him to be done intuitively, and the indications on which he bases his conclusions are so clear and conspicuous that it appears to him impossible for any other person not to discern the points, or to misinterpret them. It appears to him that he takes in all of them at a glance and draws a conclusion from them collectively. In the same manner, if any person was asked his opinion in regard to the healthy appearance of another, he would give his impression without hesitation, yet perhaps be puzzled to give his reasons for it. In both cases, doubtless, the mind does pass through a detailed process of observation and reasoning, but so rapidly that it is not tedious and seems to be a collective act. To learn the art of doing this we must study and observe slowly in our early attempts, and not be discouraged nor faithless if they are not entirely successful. A gentleman remarked to-day, "Some people must go round a horse and view him on all sides, and then do not know much about him, because they have not learned how to look at him; one good look at him is enough if a person knows how to look."

First. Observe the general proportions of a person, run the eye over his height, and weight, and observe if his members, the head, neck, shoulders, arms, trunk, and legs are well proportioned.

Second. Pay particular attention to the form and proportions of the trunk, especially its length.

Third. Notice the size, form and proportions of the different parts of the head, particularly the position of the orifice of the ear in relation to the eyebrow; observe if the orifice appears to be low down, if a line drawn from the outer angle of the eyebrow to the orifice is long and has a decided downward inclination, and if the head is thick from side to side in the region over which the line is drawn.

This is in fact the most important indication of all, and after a little proficiency in observation, will be the first to which attention will be given, and usually is all that a person need observe to determine what the family longevity is.

Fourth. Notice the size of the features, if the nose is large with open nostrils, if the side of the face is long and the side of the cheek broad and deep, the angle of the jaw being low down, making the side view of the features appear long.

Fifth. Observe the color and texture of the skin, whether dark, florid or light, especially if pallid or waxy, if the color is uniformly diffused or more intense in spots with minute blood-vessels apparent—if it has a slight yellowish or bilious tint like the yellowish white color of good teeth, if it is delicate, smooth, thin and fine, or rougher and more hardy. Notice also the color and texture of the hair, if coarse and separated, or if fine, silky, and inclined to split at the ends when short. Observe the color and appearance of the eyes, and of the teeth, gums and lips—if the eyes are brown, blue, mixed or hazel, if they are bright, clear and strongly colored; or if they are dull, glassy, or weak and watery in color. If the color is uniform throughout the iris, or shading darker or lighter toward the pupil, if a blue streak is observable where the white joins the iris, if the *areus senilis* can be seen, if the teeth are pearly or yellowish white; if the skin of lips and gums is a bright red, thin, and appears as if it would easily bleed or become inflamed, or if it appears healthy and well united to the teeth.

Sixth. Compare the colors of the hair, eyes, beard and skin, and observe if they harmonize, if the beard is lighter in color than the hair, and if the eyes are lighter than the hair or than the beard.

Seventh. Notice the length of the arm and the proportions of its parts; especially the length, size and shape of the fingers, if they are long, deeply cleft and straight, or if tapered and shorter; also notice the size, shape and texture of the nails.

Eighth. Observe the length and proportions of the parts of the leg, and the shape and length of the foot.

Ninth. Compare the temperaments, entering into the constitution of the person, and observe which predominates.

When a person has thus observed upon the peculiarities and indications of longevities for a few weeks, he will notice that there are certain respects in which all very old people resemble each other and in which some young people also resemble them. From this he will naturally, irresistibly and correctly conclude that those young people who have these resemblances to old people, have in them indications of a capability of attaining old age under favorable circumstances, and that those who do not possess these resemblances, have indications in the absence of them, that they cannot live to be old.

A learner will do best to commence his observations upon the members of several families that he knows to be long-lived, and compare those observations with those he can make on families that are short-lived. Observe at first upon striking cases, both of long and short-lived families, and the differences will be so evident that a rapid progress will be made towards interpreting less conspicuous indications.

Deductions. If the members of the body are well proportioned, the trunk relatively long, the orifice of the ear decidedly below the eyebrow and distant from it, if the head is broad in front of the ear, the whole base being massive yet well proportioned to the rest of the head, the features large, especially the nose, with expanded nostrils, the colors of the hair, eyes and beard harmonious, shading lighter from the first to the last, and particularly, if the eyes are of a true hazel color, if the skin is well colored and hardy, if the lips, gums, and lining of the nostrils and eyes are of a good color, the teeth yellowish white and sound; the temperaments well balanced, etc., there need not be any hesitation in concluding that the ancestry on both sides were naturally long-lived, and that a great capacity for living is possessed by the person under observation. The stronger these indications the greater, and the weaker they are the less, the probability of long life. If some of the indications are decided, and others weak, the party has inherited tendencies to

short life from some of his ancestors, and to long life from others. Observations must then be made to determine which persons he most strongly resembles.

How Indications to be Used.

Take notice, that while many of these indications can be observed by mere inspection, so that a person with a reasonable practice can at once judge whether a party possesses probable longevity, there is never any necessity for such an off-hand judgment, conjecture or guess, that may prove discordant with facts.

That a description of all these indications can be put upon paper by merely answering appropriate questions, is a consideration especially valuable. When, by a scientific person, such a description is collated with a similar one from an examiner of the company, and with his opinion and pathological examination, the whole must be much more satisfactory than the opinion of the examiner alone can be, particularly if it is not considered very reliable.

There is no difficulty at all in judging of decided cases either of probable great longevity, viz., of 75 to 100 years, or of probable very short life, viz., those not capable of living to be older than 40 to 50 or 55 (though now in health). But when a person is a hybrid of longevities, that is, has one naturally short and one long-lived parent whose influences are equally blended in him, it is sometimes impossible to correctly decide the probability of his life without a very thorough investigation of the case. But there is no reason for not making this in every instance, and it should be done.

It is very difficult, indeed, to impress the public mind, or that of medical examiners, with the exceedingly important truth that the present health of a person, except scrofulous, has little to do with the length of a lifetime. An opinion of the amount of the risk is very apt to be formed and given by the public, by the agent, and even by the examiner, based upon healthy appearances alone.

In all cases it is of prime importance to take into consideration th

probable length of life, as indicated in the characteristics of the ancestry, collated and compared with the personal indications of the individual.

Inheritance of Prime Importance.

Indeed, it would be far, very far safer to judge of the probable length of life of a class of persons from their family inheritance, *without* regard to health, than it would be to judge of the same class from the general "expectation" or "average" of all men, with regard to present health, viz., discarding unsound lives.

No matter how robust, strong, or healthy a person is, he cannot be called a good risk or case for insurance unless he has indications that he can maintain his condition into advanced years. It matters not how sick a person may be, if he has long-lived ancestry and indications that he has inherited longevity, his life should not be despaired of until the breath has gone. A good record of family inheritance, a good constitution, excellent health, and correct habits, are necessary to make a strong promise of old age. The chief of these are inherited longevity and a good constitution, and with those most other desirable characteristics will be found.

That these statements are reliable, and that classing of lives in accordance with these suggestions can be done effectually, has been demonstrated by the American Popular. One fact is sufficient. At the present time of writing, after nearly three years of experience, the "Best" class in this company embraces more than two thousand persons; yet from that class, during the entire period mentioned, only four losses by death have been made! No approximation to this grand and conclusive result has heretofore been made!

Secondary Points.

Vocation, residence, intelligence, care of health, habits, and present health, are secondary, though each and all are of great value.

Mr. Brace, writing from California, remarks that "Climate is only one element in forming a race; many other circumstances enter; first of all, the *blood*—that is, the inherited tendencies, the influence of a long line of ancestors. All the facts of the science of Ethnology are against the theory of climate as the determining cause. The power of inheritance, though modified in the course of ages in regard to the qualities it transmits, is far stronger than the influences of climate."

It is sometimes surprising how much dissipation a man will survive, if he has inherited great vital endurance. Usually dissipated persons not only die early, but also derive their origin as well as their dissipation from short-lived ancestry.

Several vocations that are thought to shorten life are so considered chiefly because short-lived persons select them. Except in a few hazardous vocations, there is not so much effect as is supposed.

The vocation of a preacher would be esteemed pre-eminently good, and so it is. But lists obtained by this company of the ages at decease of more than a thousand Presbyterian and Congregational preachers, show an average age of only two years more than the "general average;" while lists obtained in the same way of over thirteen hundred Methodist preachers, show that they fall several years short of the "general average." The following is to the point:

Remember that 60 is the table "average" longevity of those who have attained 20 years of age. The seventy persons of this list lived to average only 50 years of age. Twenty-two died of consumption; one so old his disease was doubtless miscalled, while several said to have died of other diseases doubtless really had it, making thirty. The other diseases are various, showing that the vocation did not develop any specific disease, as some vocations do.

President of "American Popular Life Insurance Co."

419 and 421 Broadway, New York.

DEAR SIR: I have been a member of the Vermont and New Hampshire Conferences of the Methodist E. Church nearly thirty-eight years. The annexed list of names were all Methodist Preachers of New England, from Vermont and New Hampshire, with *very* few exceptions. I have been associated and intimately acquainted with all of them. I have aimed at entire accuracy in giving the age, disease, and time of death of each one.

AGE.	DISEASE.	AGE.	DISEASE.
32...Lung Fever.	[drowned.	50...Heart Disease.	[plaint.
25...Thrown from a bridge and		72...General Debility & Kidney Com-	
29...Consumption.		52...Consumption.	
60...Liver Complaint.		55...Conges. of the Lungs.	
29...Pul. Consumption.		78...Paralysis.	
68...Nerv. Prostration & Gen. Debility.		68...Nerv. Prostration.	
38...Consumption.		39...Erysipelas.	
33...Consumption.	[sumption.	63...Catarrh ending in Consumption.	
38...Lung Fever, ending in quick Con-		57...Paralysis.	[known.
34...Lung Fever, ending in quick Con-		62...Very suddenly. Disease un-	
42...Consumption.	[sumption.	47...Consumption.	
45...Consumption.		79...Paralysis.	
61...Congestion of the Bowels.		70...Heart Disease.	
46...Cancer of the Stomach.		81...Consumption.	
31...Dysentery.		63...Heart Disease.	
45...Brain Fever.		35...Fever.	
29...Inflam. of the Bowels.		67...Paralysis Cerebellum.	[tion.
52...Typh. Fever.		68...Feeble for years—Gen'l prostra-	
41...Consumption.		81...Fever.	
31...Typh. Fever.		32...Consumption.	
35...Pleurisy fever.		81...Paralysis.	
61...Typh. Fever.	[tion.	47...Consumption.	
38...Typh. Fever and quick Consump-		82...Old age.	
28...Killed by a kick from a horse.		89...Dropsy.	
34...Consumption.		48...Consumption.	
39...Bleeding of the Lungs.		63...Erysipelas.	
70...Gen'l Debility.		35...Consumption.	
42...Consumption.		52...Hip Disease.	
46...Typh. Fever.		52...Lung fever.	[Paralysis.
56...Chron. Disease of the Bowels.		58...Injury by a fall and afterwards	
29...Consumption.		47...Conges. of the Lungs.	
63...Paralysis.		42...Consumption.	
57...Congestion of the Lungs.		59...Injuries received by a mob.	
40...Consumption.		44...Consumption.	
68...Lung fever.		92...Old age.	

All these persons were doubtless in at least ordinary health when ordained. Most of those who died of consumption, and many of the others, must have inherited short life. Consumption

rarely, if ever, originates in any person unless he inherits a tendency to it. Twenty-one lived beyond 60, several to be very old, yet they probably worked harder and were more exposed than those who died younger. If their histories were traced, it would be found that they inherited long life and had the legitimate indications of it, as some of the others had of short life; both of which facts could have been read of all men properly informed. Probably several of these persons were hybrids of longevities, who, if they had known their liabilities, might and would have taken such care of themselves at the proper times that it would have preserved their useful lives much longer.

It is not so much the influence of a vocation as it is the class of persons who go into it that generally determines longevity.

There can be no doubt that certain vocations, habits, etc., will shorten the lives of most persons to a degree, but with the exception of a few vocations not as much as would be expected, and not so much that a person of the best habits, with short-lived inheritance, will not almost surely deeease earlier than a person of the worst habits who has a very long-lived inheritance. Hence why persons of dissipated habits, and those who are indifferent to their health, will often be *erroneously pointed out as instances proving that good habits and care of health are of no use, and that bad habits are not only not injurious but really promotive of long life!*

Error Corrected.

A great error has been committed by many of the enthusiastic advocates of hygienic laws, in promising that a rigid observance of them would secure long life, while nothing has been said or thought in regard to the birthright of a capacity for living: This differs exceedingly in different persons; to such a degree that what one may do with impunity another cannot do at all. The failure of these promises has disappointed those who made them, who apparently do not perceive the defect in their reasoning, and has brought

great scandal in the public mind upon physiology, inducing many to think that its teachings are an ignis fatuus.

On the other hand the laws of health are of inestimable value; and physiology, properly interpreted, is entirely reliable. They cannot create a lease of life; that should never have been expected. But an observance of them will enable a person to enjoy the full measure of life that he has inherited a capacity for living. The laws of health, in other words, are always secondary to the laws of life. We must first ask how much of life and what length of it is in a person, and then modify accordingly the laws of health, and make them applicable to his attaining the highest degree of health and the longest life for which he has a capacity. Then the laws of health will never disappoint but produce the highest satisfaction.* We shall then be pleased to see that even the instincts of a person often guide him better than an imperfect philosophy. For example, he will select a vocation in which he will be protected from the elements to which he cannot be hardened. And if proper conditions, ventilation, &c., are observed, he will in his vocation enjoy the highest degree of health and the longest life of which he is capable, while the same vocation would be destructive of health and life to those of a different natural constitution.

Persons have absolutely worn themselves out, by endeavoring to improve their health by a hardening process. They in fact required more rest, more sleep, and less muscular activity instead of more activity and less repose. A thoughtful scientific physician of this city, has just cited to the writer the case of his brother, who shortened his days by rising with the sun and taking a walk through the park daily, when he should have spent another hour in

* The subject of Physiology is treated upon in this light in a work on "Physiology, Anatomy and Hygiene, by T. S. Lambert, M.D., LL.D.," formerly lecturer on those subjects before various institutions, and now Agent-in-Chief, and Vice President of the American Popular Life Insurance Company:—Published by Wm. Wood & Co., New York City.

bed. He produced exhaustion that begat disease of which he died.

The first inquiry then in all cases, as well as in insurance, must be in regard to the natural capacity for living—what of it existed in the ancestry, what has been inherited, and what of it is yet possessed, and we then have the data on which to proceed in directing the course of life to be pursued, or in computing the amount of a premium essential to the security of a company.

SYNOPSIS.

It appears then,

First. That the natural length of life of vegetables, animals, and men, be it less or greater, is inherited, and that while it may be cut short by a thousand causes it can only very rarely be extended.

Corollary. The undesirable pecuniary effects of this uncertainty should be guarded against by insurance.

Second. That longevity is one of the strongest and most persistent of inheritable characteristics.

Third. That different longevities are natural or inherited in different families, and while some of the members may not, and probably will not, inherit the longevity of the family, most of its members will.

Fourth. That where there are several longevities in the same family, especially if they are very diverse, some of the descendants will partake almost wholly of one longevity, some of another, and others of the blended influences.

Fifth. That by the combined or blended influence of different stocks, sometimes, though very rarely, an extended longevity is obtained that did not exist in any ancestor.

Sixth. That longevity, like other characteristics, may extend its influence beyond, or overleap one generation, so that children "taking after grandfathers" may sometimes attain an age their parents

could not reach, or experience diseases to which their parents were not so liable.

Seventh. That if neither parents nor grandparents lived beyond a certain age, it will be very rare to find a descendant living beyond that age, no matter how healthy he may be previously.

Eighth. That an inherited short life by no means presupposes consumptive tendencies, or that death will be produced by such a disease, since a short life may terminate in any manner, or expire of old age, just as truly as one which is twice as old.

Ninth. That the "general average" length of life from birth, or the special average of any age, or of any family, does not afford complete data by which to judge of the probable lifetime of any particular individual.

Tenth. That while the table "average" of life from birth or from any age may give some *general* data, and while the "average" life of a person's family will furnish *approximate* data, for judging of his probable length of life, the probable length can only be *correctly* known by observing his *personal indications* of longevity.

Eleventh. That there are abundant reliable personal indications of longevity which, when prominent, can be easily discerned by even an ordinary observer after a little teaching, and in all cases can be readily recognized by a person of skillful judgment.

Twelfth. That it is not only possible, but *easy* and *practical* for the purposes of correct Life Insurance, to *thoroughly class persons who are similar to each other in their probabilities of living.*

Corollary, 1. Such thorough classing must, in the nature of things, be at once the highest attainment in Insurance science, and the most practically valuable step in determining and protecting the individual rights of the assured.

Corollary, 2. Classing is the only way by which those who by money or by their superior health, vigor and probable longevity, invest largely in Insurance, can ever hope to realize any adequate return

for their investment, by which they largely contribute to the prosperity of a company, but unless thoroughly classed without any advantage to themselves.

Corollary, 3. Thorough classing would be of very great value if it secured no more than the thorough and particular inspection of each case, which is absolutely necessary when the value of each is to be judged upon its own merits, and is not based in the hope that its shortcoming will be balanced by the next case. (A hope that will surely often prove delusive, when the chances that each inferior will be balanced by a superior case, are reduced by having every inducement to insure held out to the inferior, and all the disadvantages of insuring presented to the superior lives, as is the case in the gregarious plan of all the old companies, neither of which do nor can thoroughly class.)

INTERESTING APPLICATIONS.

The opportunities for the practical application of the very important facts, and the still more important inferences already exhibited, are so numerous that it would not be proper here to enter upon all the details; only the heads under which most of them can be found can be here suggested.

The Laws of Life exhibited in Family Inheritance and the Individual Indications of Longevity are so personally valuable that they will be constant and fresh topics to induce thought, observation, and conversation, while also cases for observation are always at hand.

If a person, by a partial knowledge of these Laws, or by their application to him by others, learns that by maintaining good habits and taking care of himself, he can probably live many years longer, what deep and important plans he may reasonably hope to fulfil during that probable long period of active manhood!

Knowing that he has such a desirable inheritance, will he not,

though young, also take counsel of wisdom in the matter of not allowing his affections to become interested where he may be sure that early grief at best must be his lot?

In selecting partners in business, will he not think of the importance of being associated with those of similar longevities, both for the sake of similarity of views upon business and for permanence in it?

If when sick he feels assured that from a long-lived ancestry he has inherited an enduring constitution, will not his confidence in restoration assist in hastening it?

If, on the other hand, he learns that he cannot expect great length of days, will not that knowledge be of the greatest service to him? Will he not, guided by an enlightened judgment, thus avoid entering upon such business as requires much time to learn and great experience for its successful prosecution, and only apply himself to such as will yield him an early fruition?

How frequently probably short-lived children are, because delicate and unhealthy, put to learn professions or a business requiring the investment of much time and money, and a mental expenditure which is doubly wearing; while stronger and long-lived youth, because athletic, are doomed to mere muscular employments, requiring little mental application, for which, in fact, their slow development and vigorous health are best adapted.

The boy "good to mind," and willing to study while others are at play, will delight an affectionate teacher, who will interpret his precocity to be the promise of great future usefulness, and, misguided, will urge his parents to bless the world by giving to the boy a complete education. Such precocity, if as usual associated with short life, gives early promise, but eventuates in disappointment. *In short, it is usually the wrong material that is educated.*

One of the \$500 Prize Essays.

PHYSICAL INDICATIONS OF LONGEVITY IN MAN.

[WRITTEN FOR THE AMERICAN POPULAR LIFE INSURANCE CO.]

BY J. V. C. SMITH, M. D., OF BOSTON.

SUCH has been the progress of science, that many subjects once considered extremely difficult, are now perfectly well understood.

Assuming it to be true that every thing within the domain of nature is regulated by positive laws, whether relating to atoms or to complicated organized beings, it is probable that by patient inquiry, careful observation, and untiring vigilance, important discoveries of great practical value will hereafter be made in anatomy, physiology, and the phenomena of life.

Science is constantly opening new avenues to knowledge, and bringing to light extraordinary facts illustrative of the vast resources of that Divine power which regulates and controls the works of creation.

It is admitted that death is inevitable, and the doom of every living being. Death, therefore, is not a fortuitous circumstance, but a condition, in accordance with a law which essentially contributes to the greatest amount of happiness to all.

Were men and animals constantly multiplying, without limitation, the products of the earth could not possibly meet their demands. But death kindly regulates and apportions the consumers to the quantity produced. Thus harmony is established, and each

race, like individuals, fulfils its destiny, and then gives way to others.

Without entering upon a discussion of difficult problems, in expectation of reconciling conflicting opinions, it is better to avail ourselves of what has already been gathered by legitimate scientific research, instead of wasting labor in theoretical speculations.

HEREDITARY LONGEVITY.

Notwithstanding the contingencies which beset human life in unnumbered forms, there are families in which length of days is an inheritance. Children born from such stocks, derive a vital force which is recognized as being peculiar. Thus one generation follows another in that particular line, remarkable for the age sometimes attained.

As far back in the history of man as the patriarchal days of the Jews, a knowledge of this transmission of long life appears to have been familiar. When Jacob was introduced to Pharaoh, king of Egypt, by Joseph, the monarch was struck with the venerable appearance of the father, and demanded his age. "And Jacob said unto Pharaoh, The days of the years of my pilgrimage are one hundred and thirty years; few and evil have the days of the years of my life been, and have not attained unto the days of the years of the life of my fathers, in the days of their pilgrimage."

A family of six to ten children, for example, of both sexes, originating from the same source,—both father and mother reaching from ninety to one hundred years,—may safely be presumed to have been born to the inheritance of many years, all other circumstances being favorable.

Were the father from a long-lived ancestry, but the mother not so, some of their offspring will exhibit the extreme of protracted age, while others of the brothers and sisters may not pass beyond an average period of life.

In a family thus constituted, a liability to disease is to be apprehended. However, that must evidently depend on the nature

of their employments; exposure to an impure atmosphere; dissipations; locality, and other circumstances to be taken into account. Such are the results of observation of competent medical inquirers who have sought diligently for signs of longevity.

Of any given number of brothers and sisters, traced to a parentage thus defined, the sisters, as a general law, appear to outlive the brothers. Perhaps the value of life may be determined in their favor, in consequence of moving in a smaller circle of exposure, exempt from the cares, incidents, excesses, &c., to which the male sex is both more prone and of necessity more exposed.

When females of such a family are agreeably married, and their days flow on in a peaceful channel of domestic comfort, they generally live to be spoken of as very aged women.

Again; should a mother be from a long-lived parentage, and her husband not, or if he is of a feeble organization, and yet not decidedly sickly, the sons of such parents will usually live to be older than their sisters. Of course, locality, social condition, employments, and the contingencies which belong to their surroundings, are to be carefully weighed. Moral circumstances must also be considered. If their domestic relations are propitious—being happily married—and they are addicted to no vicious, debilitating habits, they die far advanced in life, distinguished for their prudence, industry, and virtuous example. Their vitality seems to be directly derived from the maternal side.

Less attention has been given to this subject than it obviously deserves, in estimating the probabilities of life.

It is admitted as an established fact, that long life is an actual inheritance—transmitted from parents to children. What all the conditions may be conducing to it, still defies the scrutiny of physiological inquirers.

People of intelligence who give themselves no care in the study of natural laws, recognize the truth of the foregoing conclusions, because in accordance with their own knowledge of the lives of individuals within the circle of their acquaintance.

Cases without number might be collected from authentic sources, to sustain the views set forth in the foregoing propositions.

STATURE.

There is a law of limitation in growth, by no means understood. A striking difference in stature is noticeable in savage as well as in civilized life. Six feet in height is a pretty uniform measure of tall men. However, individuals are seen in all countries who reach six feet four inches, seven feet, and a few in several millions attain even eight feet.

Brothers and sisters of the same parentage, reared under precisely the same circumstances, as it regards food, clothing, ventilation of apartments, have different statures when they arrive at adult age. And yet at birth, and through the developing periods of childhood and adolescence, they were apparently influenced, physically, precisely alike. Blood from the same original fountain courses through their bodies. They were nourished from one lactic source in early infancy.

Unquestionably, therefore, there are causes operating, disadvantageously at times, for the development of parts, if not of the whole of the body.

In dwarfs, the deposition of ossific matter suddenly stops. It may very soon after birth; or it may happen at an epoch between the second and fifth year. Occasionally the process of growth ceases in a single limb; or it may in two so exactly at the same time, as to leave them of the same length; from some unknown cause some elements essential to the growth of the parts ceased to be deposited.

While there is a progressive development going on and the frame and all its internal mechanism is being elaborated and completed, intense activity characterizes the absorbent system. By and by, however, the law of limitation puts a stop to those long-continued vital operations. Ossification is then completed; the

museles are full and strong, and future secretions of lime or other components of the solids, instead of being deposited, as they once were, to increase the length and volume, are appropriated only to keep the machine in repair.

Tall people have not as strong bones, nor are they usually as plump, not having as rounded museles, as those of medium height, or the decidedly short.

In the former, all circumstances being equal, the bones are more easily fractured. A union of broken extremities is imagined, by some surgeons, to be more rapidly formed in short than in tall patients. If there is really any difference in favor of the short sufferers, it may be due to a more energetic circulation. Vital forces are stronger in the short than in the remarkably tall man. Very tall women are rarely so well developed and robust as those of shorter stature. Corresponding facts respecting the circulation and some other minor points, noticeable in the other sex, are also of some importance in studying this subject.

Admitting vital force to be weaker in tall persons, it is also sooner exhausted. They cannot endure certain deprivations with as much certainty of not being injured, as persons of inferior stature, with larger depositions of fat in the areolar textures. Further, it is claimed that the prospect of life is in favor of short persons, and that their thoracic capacity is generally larger.

A narrow chest, oftener than otherwise, belongs to tall persons. Particularly broad-chested people are not very tall. More perfect oxygenation of the blood takes place in the lungs where those organs are fully developed, than in thoracic cavities in which they are small in volume in consequence of the smallness of the region where they are inflated.

Longevity in man is necessarily dependent upon sound lungs of large capacity, amply supplied with pure atmospheric air. A languid circulation indicates an inadequate amount of oxygen,—or which, if sufficient, is imperfectly appropriated when supplied.

Respiration and the beat of the heart are ordinarily more rapid

in the short than in the tall. If not, then there is a compensation in the strength of the pulsations and the amount of vitality distributed in a given time, so that the short man, of the two, is thought to have the greatest tenacity of life.

Anatomical investigations show that in short persons the lower limbs are not proportioned to the general size or carpentry of the skeleton; and usually it is there that the difference is found in the statures of men and women. At birth the legs are shorter and smaller than they should be for exact symmetrical proportions.

When ossification in the lower extremities does not go on as rapidly as in the bones above, there is an increased ossific deposition in the spinal column. Each and every block or vertebra is made broader, and also in its vertical direction deeper,—which gives a deeper chest from above downwards. With that enlargement, there is also more breadth given to the base of the chest; with that conformation, the abdomen is also long.

By thus raising each separate block of the spine, from the os sacrum to the last dorsal block at the top of the chest,—all the organs in those cavities are larger and therefore have an increased capacity for carrying on to perfection the two essential functions of respiration and digestion.

Curious as it may appear, the vertebræ of the neck do not always take the increased ossific activity which is operating in the vertebræ below, and hence persons noticeable for their short legs and long bodies, are usually characterized by short necks.

Baron Humboldt, the Duke of Wellington, and Ex-President John Quincy Adams, had precisely the anatomical conformation here described. They were short men, with remarkable length of body, mounted on equally remarkable short, small, lower limbs. The first died at the age of ninety-two, and the others lived beyond eighty years.

Tall persons have usually smaller vertebræ, of less vertical depth, and consequently smaller chests in two directions than the

short. The lobes of their lungs are also smaller. Their height is chiefly due to the length of their legs.

Although there may be exceptions to all rules, the popular sentiment among those who have no assistance from science, is that short people actually live longer than tall ones.

It is a prevailing notion of nurses, countenanced to some extent by medical authority, that tall persons do not recover from injuries of the bones as soon as short people, and that they oftener have lesions of the lungs, and are also more prone to pulmonary and other maladies of a grave form in that region, than short, compact, broad-chested persons.

The real place to look for the difference of height, generally, is in the long bones of the lower extremities. Sometimes the thigh-bones are, according to what are called the laws of anatomical proportion, proportionably longer than the long bones of the leg between the knee and instep.

Take any number of ladies, indifferently, short and tall, seated upon the same level, and there is not very much difference in their measurement from the base of the pelvic bones, on which the weight of the body rests, to the top of the head. In them the difference, as in men, is found in the lower limbs, while all other parts of their frames are in harmonious development. The body of the shortest of them is ordinarily as long, and the internal organs are quite as large and complete, as in the tall ladies. Very tall females occasionally present the anomaly of having eight vertebræ in the neck, while the majority of all women on the globe have but seven.

Blood, to be forced through long arteries, and returned to the centre of the circulation, makes greater demands upon the heart,—a forcing engine,—than when propelled through short vessels; consequently, vitality is sooner expended.

On this principle, a clue is gained to a fundamental law,—which furnishes a hope of yet obtaining a knowledge of definite signs of longevity in man.

This subject, one of peculiar interest to an anatomist, should be considered in connection with the laws of development.

BOUNDARIES OF THE CHEST.

Life-insurance offices are very much influenced by the capacity of the chest in its transverse diameter.

The impression of officers in the administration of those institutions is this, viz., that if the girth is large at the middle, about on a line with the lower end of the sternum, or breastbone, it is proof positive of a large apartment within for the lungs. But that is, to a considerable extent, a fallacy.

A particularly broad chest should not alone be a guide in determining the probabilities of life. Nor should it be neglected altogether, but be grouped with other measurements and anatomical considerations.

A woman, of ordinary physical development, seems to have more breadth between the shoulders, examined in front, than she really has. Her shoulders are actually set farther back than the shoulder-joints of men. Posteriorly, the shoulders approximate nearer; but unless scrutinized carefully, that arrangement might escape the eye of any one not an artist. The collar-bones of women are longer than the same bones in men,—forcing the shoulders back, as it were, in order to furnish a wider space for the lodgment of the breasts.

This fact makes it clear why it is that they cannot throw balls, or any thing, with force and precision, although they can perform many other apparently much more difficult feats with ease and grace. When they attempt throwing, as men do, it invariably excites the laughter of spectators on account of their awkwardness, contrasted with their otherwise graceful movements. No training can overcome it, because the difficulty lies in the length and anatomical attachment of the clavicles, having a direct reference to lactation. It is remarkable how well this structure of the clavicles is adapted to enable a female to handle and carry an infant, so that

a feeble woman will not be as soon tired by taking care of the young child as a strong man.

Now, at first sight, a chest may be thought to have a large capacity, while it is comparatively small, owing to the development of the broad, thin muscles which wind up from the lumbar region, over the ribs, to reach the arms. Thus blacksmiths, stonecutters, carpenters, masons, goldbeaters, and some others devoted to energetic handiwork, and consequently swinging heavy hammers, mallets, and the like, make those muscles enormously large, thick, and strong by the labor imposed upon them, thus giving them in appearance broad chests. The measuring-tape, after all, may lead to a deception.

Depth of the chest from the collar-bones down to the last short rib is not mentioned in medical examinations. Some important deductions, however, are to be made from that line of measurement in forming a medical opinion respecting the physical signs of longevity.

The necks of females sometimes vary astonishingly in length, but those of men more rarely. Twenty-four blocks or vertebræ constitute the spine. There are five in the loins, twelve in the dorsal region, and seven in the neck. In the very long, swan-like necks of some ladies there are eight vertebræ. The extra block is taken from the dorsal part of the column, leaving only eleven in the spine. This extra length of the neck gives an extra charm to the individual without exhibiting a deformity in the back. The chest is, however, just so much shorter; and the heart and lungs are, as a natural consequence, cramped into smaller apartments. The lungs are smaller than they would have been, were the thorax or chest one inch deeper, vertically.

A long neck in a female indicates a small chest and not a powerful vital force. Medical examiners should be mindful of this diminished depth of the pleural cavities, as being of far more importance than diameter, on which they often depend in making up a judgment, on which the issue of a life-policy or its refusal may

be determined. Where there is a shallow chest, as in those referred to, and the large size of the lateral external muscles adds to its diameter, it must be kept in mind that the inside capacity of the chest may be exceedingly small.

Uncommon space between the shoulders does not indicate breadth inside to correspond with it. The bony structure of the chest represents a cone, with its apex upward. The base is far wider from one side to the other than it is from the front back to the spine. Between the shoulder joints and the top of the breast-bone, that wide space is filled up and cushioned over the blood-vessels and nerves belonging to the arms, by pectoral muscles; and hence that vast breadth, so generally considered as an irresistible evidence of room within for the play of the lungs, to an anatomist indicates nothing of the kind.

Many apparently small chests, by the usual mode of deciding upon their capacity, may receive as many cubic inches of air as those thought to hold apparently a far larger quantity. A vertical measurement has been quite neglected.

When spirometers shall be more frequently consulted by medical examiners, then will be obtained a nearer approximation to what it is desirable to know, viz., the actual inner capacity of the chest. Offices will be more careful in granting policies, and their losses will be fewer. This is true in respect to both sexes, and the conclusions arrived at are based on the laws of physical development.

We gather from the foregoing premises the following results :

1st. Short persons, of sound constitutions, unimpaired by violations of natural laws of health, have a prospect of a longer life than tall persons, all other circumstances being equal.

2d. Females having particularly long necks, have shorter chests, and narrower at the base, than those whose necks are of the ordinary appearance.

3d. Diseases of the lungs do more frequently exist in tall men than in those of medium height, or those between five feet seven inches and five feet nine ; and a hereditary tendency to pulmonary

consumption is thought to be found in tall families more frequently than in others.

4th. When pulmonary disease is hereditary in a family, children are not unfrequently born with tubercles in the tissues of the lungs. Years may be required to develop them, unless they are subjected to some exciting causes. Slight inflammatory action in the mucous membrane of the bronchial tubes sometimes suddenly extends to them, quickens them into activity, and ulceration soon appears, destroying the delicate texture of the neighboring air-cells, interrupting the aeration of the blood, and death follows.

In those descended from a parentage the ancestors of whom died of consumption, no external examination of the chest, either by percussion, measurements, beat of the pulse or respiration, or even the ratio of one to the other in a given time, furnish any reliable signs of the presence of tuberculous formations. An habitual cough indicates in unmistakable language that they are beginning to assume a new condition, invariably destructive in tendency.

Under such circumstances, owing to the quiescence of the tubercles, medical examiners are self-deceived, and offices incur great losses, which might have been saved by regarding with scrupulous care the hereditary laws of disease in families.

Individuals born with undeveloped seeds of a malady that rarely fails to show itself, if no other disease of an acute character carries off the patient, may sometimes live with tolerable comfort, by a watchful system of care, to fifty years, before the tubercles show a disposition to inflame.

Medical examiners, therefore, must not be forgetful of these important facts, which are the results of a long series of observations, with a view to ascertaining what signs of longevity in man exist in those who have descended from a consumptive family. Even a very remote relationship to those who have died of consumption should invariably be taken into account, in connection with the physical condition of an applicant for insurance.

MUSCULARITY.

In general appearance an individual may be well-formed, and yet be defective in some of the muscular powers. The muscles may vary in size too, from causes not always readily detected; and they may be brought into such a regular system of action by habitual practice, as to raise their tone and power immensely.

While there may be great muscularity—the result of use, as in the muscles of hand-laborers—the thoracic or abdominal organs may be in a state of melancholy disease. The stethoscope and the heart's beats, rather than the external muscular condition, should be the evidence on which a professional opinion should be predicated.

Muscularity of the limbs of females will much oftener mislead medical examiners than similar appearances in men. In addition to that, females have larger depositions of fat in the areolar texture between the skin and muscles, giving them a rounded, beautiful contour, and yet their internal condition may be entirely unsound.

Female fashionable costumes war against long life, and certainly against health. The vice of confining under-garments tightly round the waist, interrupts the free movement of the blood. The base of the chest is contracted, and the bowels are forced out of place, downward. An unnatural pressure is made upon the still lower pelvic viscera, resulting in morbid difficulties of peculiar gravity, as often as otherwise beyond relief from the resources of art or science.

Females oftener than males bring on a diseased state of the lungs, from direct violation of the ordinary laws of health. Their organization is more delicate; their susceptibility more acute; and their light dresses, thin shoes, and less frequent use of the pure out-door atmosphere, predispose them to more frequent attacks of disease.

Females in cities are more prone to consumption than those residing in the country. Their muscularity is not an indication of

sound health, neither is it a sign of disease. Their true condition is not so readily ascertained by common modes of examination, as that of men. Still, short women, all other circumstances being equal, present the most favorable conditions for health.

TEMPERAMENT.

People differ very essentially in their temperaments. Some are habitually slow and provokingly deliberate. Others are so active as to be annoyances to their friends and associates. One is excessively excitable, another dull as an oyster. All these diversities are universally recognized, and have something to do with the good or bad physical condition of each and all.

Those who take the world easily, have more of life than another class whose friction of soul wastes them away prematurely. A restless, uneasy, unhappy disposition, tends unfavorably. Insanity, and a fearful catalogue of woes, wait upon such as run into extremes, let the temperament be what it may.

Melancholy, habitual gloom, dark forebodings, and seeing evil everywhere and in every thing, is not a recommendation for life insurance. In excessive nervousness—too much action, as in too little—there are clear signs of a short life.

PULSE.

Full confidence is had in a strong, full, regular pulse, when in harmony with respiration.

Where suspicions are entertained of any unfairness, examinations should be instituted before as well as after a meal. When there is an imperfection of the heart, in the valves on either side, or in the pulmonary artery or aorta, peculiar advantages are derived from examination on a full and again on an empty stomach.

Irregularities of pulse may have been caused by strong coffee, strong tea, mental excitements, etc.; hence, in such cases the safest course is to make repeated examinations.

Young women may have an irregular and even an intermitting pulse, and be free from any morbid disease. Hysterical affections produce singular disturbance in the circulation, which may immediately subside.

Childbirth, with all its woes, strangely deranges the circulation for a while, but it indicates nothing more than this, that an increased vital force is needed to meet an emergency. It is neither a disease nor necessarily productive of it, to bear children. Those who have had the largest number, in accordance with the law of compensation, live longer than those who were never mothers. Congenital defects, malformations, hereditary tendency to morbid conditions, are not to be noticed in connection with simple, uncomplicated gestation.

More females who have reached an adult age die from not having been mothers, than ever fell a sacrifice to maternity. There are more physical signs of longevity in those who have had children, than in those who have not borne them.

INDIGESTION.

Dyspepsia may be an affliction, and productive of long-continued suffering; but the experience of those who are minutely conversant with the phases it assumes, assures us that no immediately dangerous symptoms are indicated by it. Men affected by dyspepsia continue to live far into "the sear and yellow leaf," and are finally carried off by some other malady, apparently quite independent of indigestion.

Theory suggests that the loss of all the teeth interferes with the necessary preparation of the food, and without them, digestion becomes impaired, nutrition is imperfect, and consequently the vital forces become prematurely enfeebled.

Life is not shortened, materially, by a series of dyspeptic years, nor does the entire loss of all the teeth prevent a healthful digestion of certain kinds of food.

Should indigestion in its aggravated forms be traced to a morbid state of the liver, or arise from some peculiar condition of the mesenteric or other glands in the track of the intestinal tube, it is the province of the medical examiner, as an expert, to point out the presumed seat of disease. An enlarged liver is not to be trusted.

More stress is laid upon what is popularly called indigestion, by some offices, than ought to be given to it. In the northern parts of the United States, dyspepsia is very common, but not very dangerous.

RESPIRATION.

Less is required to be said on this topic than any other, because it has already been discussed in all its bearings. If the lungs are sound, then, in an unvitiated atmosphere, life is sustained in all its completeness. On the contrary, when diseased or mechanically injured, however slightly, aeration is imperfectly accomplished, and a loss of vitality unavoidably follows.

As a large number of industrial employments are particularly injurious to the respiratory apparatus, a familiar acquaintance with what happens to the breathing organs by being within the influence of certain trades, is essential.

Laboring in fine, nearly imperceptible dust in manufacturing establishments, in shops where fine metallic particles from grindstones, or grit are flying; inhaling the fumes of sulphur and burning charcoal; working over polishing-wheels, and blowing wind instruments, are causes of injury to the lungs. The same, too, occurs from breathing fetid gases.

Wind instruments may be played for years in succession with apparent impunity, but it may be assumed as certain that they shorten life. Some musicians acquire a tact in converting the mouth into a bellows, thus relieving the delicate air-cells from over-distention. All players cannot do it, and lesions occur when least expected.

ABDOMINAL DEVELOPMENT.

A large, protuberant abdomen is generally an unfavorable condition. It appertains to middle age mostly, even with those of abstemious habits. All the hollow viscera are disproportionately large, as though the muscular fibres encircling them were put upon the stretch. If not loaded with fat, they are apt to be distended with an undue quantity of fluid and flatus.

Large eaters require large quantities of diluents, which interfere with a free peristaltic movement of the contents of the digestory canal, and hence such persons are liable to many contingencies.

Their necks have the appearance of being short, compared with others of the same stature. A slight extra exertion is attended with fatigue, an accelerated pulse and rapid respiration, which, combined, quickly diminish the vital force. They incline to drowse, and especially after a meal, unless their minds are pretty actively occupied. In short, there is a tendency to sudden loss of consciousness and apoplexy.

Sometimes persons of large abdominal size, without any indisposition, die in their chairs, or fall down and instantly expire. The arteries, in their ease, convey blood to the brain faster than the veins bring it back; which explains some of the phenomena observable in those presenting that inconvenient kind of development. Congestion of the brain may be anticipated, if persons of large abdomens over-stimulate, or contract intemperate habits. In them, therefore, the probabilities are against long life.

HABITS.

Bad habits, in the sense in which they are understood, are positive violations of natural laws, on the proper observance of which good health mainly depends.

A habit or custom of rising early and retiring early, and having regular employment as well as regular hours for meals, establishes order eminently conducive to health and life. Regularity in labor

and relaxation from it, cause the functions of the body to be performed much more perfectly than when they are irregular, or than when paroxysms of rage, excitements, engorgements, or excess of any kind, are frequently interrupting the harmony of vital operations.

Food, to be appropriated most beneficially, should be taken at specific hours; and, keeping to those domestic habits which each family establishes to suit its own convenience, promotes longevity, while any very considerable or sudden deviation from them imperils the health.

Periods of relaxation are required. A student who works his brain continuously, trespasses upon a law of life. Alternations of action in the muscles, the brain, and nervous centres, are necessary to health.

Long life cannot be had by working wholly and uninterruptedly one set of organs. Relaxation affords a respite for recuperation, where there was an exhaustion—a law of life too frequently set at defiance. All the signs of long life cannot be found where there is all work and no play.

MARRIED AND SINGLE.

Studies having in view a knowledge of the hygienic bearing of the laws which govern organized beings, discover that certain relations are indispensable. Without food, life could not long be sustained. Without social relations, defined by civil legislation and sanctioned by divine authority, mankind would not advance in civilization and moral strength.

Peace and the security of society, as the world progresses, must depend on the organization of families. Even the public health, as that of individuals, could not be maintained without obeying certain laws which instinctively give direction how and what to do.

Very ignorant persons, without being instructed, know that by washing they may be clean; by putting on clothing, they promote warmth; and that manner of reasoning would logically show that instinct has more influences to exert even on the highest

order of mental capacities, than might at first be suspected. Neither quotations or the recital of cases are required to demonstrate what will be admitted as an incontrovertible truth—that marriage is one of the means of securing health, as it does happiness.

Marriage is conducive to long life, since the majority of those in all countries and climates who have attained to the longest life, were or had been married. Single men and single women do not average as many years as the married, nor are they as free from sickness.

It should be emphatically stated that child-bearing is not a disease, nor does it lessen the "Expectation" of life; on the other hand, life is extended by the effects of pregnancy and of childbirth. It is not only therefore an honor to woman but an emolument, and no Company should put an extra premium upon woman as woman, but should rather diminish her cost of insurance.

It is very desirable that this should be generally understood, since there are very many women who can with the greatest profit take advantage of life insurance: nor may it be amiss here to say, that there are very many women known to the writer, who would, in his opinion, make excellent agents for bringing the advantages of life insurance before women, and thus profit all parties.

Childbirth, so often mentioned by applicants as the cause of decease of relatives, is only, as a usual thing, a cover to some other disease of a tuberculous character, kept back perhaps by the pregnancy, and reappearing after childbirth, which is thus very wrongfully accused in most cases. The mention of it as a cause of decease is always a suspicious circumstance, and should always be counted as exhibiting a weakness.

The chance or expectation of life, therefore, is in favor of the married. In that relation, women, on an average, outlive the men; and widows live to be older than widowers. The difference is to be explained by referring to the exposures and habits of the one, and the more quiet and orderly course of life of the other. Women keep more within the boundaries of prudence, which is another con-

sideration, and are exempt from a variety of excitements, which agonize and fritter away vitality in men.

Single ladies, more frequently than the married, engage in reformatory or charitable enterprises as a *diverticulum*. They are waste-gates to nervous energy, which begins to show itself when they have passed the age that glows with youth. If, as age advances, they embrace religious or political doctrines which were quite neglected or only assented to before, their enthusiasm sometimes becomes intensely active, almost to the exclusion of other thoughts.

Professional politicians pursue nearly the same course for the attainment of other objects, and consequently wear themselves out prematurely, in a resolution to carry men as well as measures.

But the prospect of life is better for the single woman than for the revolutionizing man, because she rarely smokes, drinks no strong liquors, and ordinarily has well-regulated domestic habits.

INTERRUPTED PROSPECTIVE LONGEVITY.

Speculators of all denominations, like politicians and ferocious moral reformers, abridge their lives by excessive demands upon their vitality. Anxiety, hope deferred, and a shipwreck of long-cherished expectations of finally triumphing and reaping the rewards of perseverance, often terminate life tragically, if they do not end in a lingering disease.

Life-offices should hesitate in taking such risks. They are usually sought by such persons, from an instinctive apprehension that they may suddenly die; and they resort to the insurance office as they would to a lottery bureau, hoping to draw a prize for the benefit of their families or creditors.

A medical examiner should cautiously weigh every circumstance of their daily course of life, and analyze the pulsations at different sittings, before making up a judgment. Oftener than otherwise, they have organic derangements of the valves of the heart, and in the pulmonary artery.

It should also be remembered that those who are naturally short-lived, have an indefinite, instinctive feeling that they are so—which is often manifested by an over-anxiety to be insured, or to be insured for large amounts, compared with their circumstances—one of the most suspicious indications. It is not so much a deliberate intention to make a profit out of the Company, as it is an instinctive conclusion, unconsciously arrived at, and much more reliable than any reasoning could make it. The great danger to a Company consists in their liability to take as good risks, those who are inherently short-lived, because they are, when examined, healthy, and do not exhibit scrofula, which is by no means the only inheritable or constitutional cause of inherent short life. Therefore, every physical and mental indication of the probable length of life of a party applying for insurance, should be carefully considered, by those qualified to judge by their scientific attainments, quickness and accuracy of perception, thorough and ample experience, and sound judgment. It is believed that if sufficient care was taken in this respect, and if the insured were properly classed, in accordance with equity, by all the Companies, one source of their anxiety would be entirely removed, and the most desirable security would take its place, with great satisfaction also to the public.

Finally, is it possible to discover physical signs of longevity in man ?

1st. A symmetrically developed form, with lungs and heart sound, in connection with regular habits of life, when descended from a parentage free from all hereditary predisposition to disease, are physical signs of longevity in man.

2dly. There may be contingencies to which such an individual is exposed, that may shorten the period of life ; but independently of those, all the natural laws being obeyed, the full measure of days allotted to man by the natural law of his family limitation, may be confidently expected.

3dly. Systematic habits in either sex, without reference to outdoor or in-door employments, are conducive to long life.

4thly. All other circumstances being equal, avoidance of all enervating excesses, and particularly such as are regarded as vices, and of all violations of physiological laws, give increased confidence in the probable longevity in men or women.

SPECIFIC SIGNS OF LONGEVITY IN MAN.

1. Both men and women born of parentage remarkable for longevity, inherit vitality, and are generally tenacious of life. They occasionally reach a very advanced period, being rarely the victims of acute or epidemic diseases.

2. Children born of parents, one, but not both, of whom inherited long life, do not equally inherit vitality. In any considerable number of brothers and sisters thus born, some of them will live to be aged, but not all.

3. Men or women, with particularly long bodies, otherwise well developed, and governed by all the circumstances and conditions heretofore noted, give satisfactory physical signs of a long life.

4. Married women who have borne children, if in comfortable circumstances, especially in the country, have the prospect of a longer life than those who were never mothers.

5. Widows have not the prospect of so long a life as married women.

6. Widowers have not a prospect of so long a life as married men. Married persons, if happily connected, have a prospect of a longer life than the unmarried.

7. Unmarried women, in health, easy in their circumstances, and pleasantly conditioned in society, have the prospect of a longer life than unmarried men of the same social condition.

8. Unmarried women, dependent upon their personal efforts, and harassed by anxieties, have not a prospect of a long life.

9. Excitable, fractious men or women, when married, who are subject to paroxysms of sudden anger, peril their prospects for a long life.

10. Both men and women, although in easy circumstances, if of a jealous, irritable disposition, or subject to morose exhibitions of temper—married or unmarried—have not a prospect of long life. Still, a few out of many may sometimes live to be aged.

11. Men or women who have changed their residence from a cold or moderately temperate climate of one continent to a similar climate in another, if comfortable in their circumstances, and industrious and correct in their habits, do not have their vitality impaired.

12. Men or women who thus remove from one continent to another, as from Europe to America, or from America to Europe, if inclined to excesses which impair the vital force, may die prematurely.

MISCELLANEOUS MALADIES.

All the physical signs of longevity in man, which fully aid a medical examiner in forming a judgment respecting the probable duration of life, can only be found by patient investigation and examination of the applicant.

Coughs, both recent and chronic; catarrhal affections; chronic inflammation of the mucous membrane of the throat; neuralgic pains; rheumatism; indolent tumors; dropsical effusions; fistulous discharges, and hernial protrusions, are to be carefully considered. How much or to what extent they may impair the general health or lessen the prospect of life, is to be determined by physicians, who derive their knowledge on those points almost exclusively from their professional experience.

If persons from the North and West, who have resided for a considerable time in marshy regions of the Southern States, on their return, take up a permanent residence, they are liable to derangements of the liver. A sallowness of the skin, accompanied by irregularities of the digestive apparatus, is one of its indications. They are not distinguished for long life when the liver, spleen, or stomach become disordered by malarial influences.

CONCLUSION.

It appears that the prosperity of a Life Insurance Company is essentially, indeed it might be said entirely, dependent, in every fundamental respect, on medical men. Only their scientific, pathological, and physiological skill, experience, and judgment can safely and equitably indicate the probabilities of life, and consequently the appropriate premiums to be charged.

Managers or agents who actively present or represent the subject before the public, awaken interest and secure patronage, and those who securely and profitably account and invest the funds obtained, are worthy of all credit. That, however, is but the mechanical work, and without the intellectual labor and the aid of the skillful professional man, every thing will be in vain—a total failure. He should not, therefore, be esteemed, as he usually is, a mere employee, but as the chief responsible man; he should be the highest paid of any in the Company, and placed under every inducement of interest and reputation to devote all his talents, education, and energy to the work. A multitude of defects would thus be corrected, and the security of the Company suitably defended. The writer has often observed, with regret, the most responsible positions of a home office occupied by medical men so young and inexperienced as to be altogether unfit for their high duties. The present order of things permitted these positions to be given to them, through relationship, friendship, pecuniary or other jeopardizing motives. This should be altogether reformed. He has also repeatedly noticed with astonishment “examinations” sent in by the appointees of a Company for its guidance, showing that they did not know even how to spell their mother-tongue correctly; and he has trembled at the thought of the vast interests thus imperiled; indeed, the writer was told by the President of one Company that it had lost \$40,000 in one year by one such incompetent ‘examiner.’

No such result could occur, if the medical department were .

independent, and presided over by a properly-qualified professional gentleman, independently and thoroughly performing the functions of an executive officer, and held strictly accountable to the Company for the complete and judicious performance of his duties.

It would be his duty to become familiar with all the channels through which any knowledge of applicants can be obtained, to scrutinize in particular the intelligence, skill, and integrity of his sub-examiners, so as to know what confidence to place in their examinations, and to a degree to become responsible for them; to instruct them in their duties, etc.

Usually a few mathematical tables and a general average of the length of life has been considered as the important substratum of a life insurance organization. As well might a dry skeleton be considered as the living man. Mere mathematicians, dignifying themselves with the name of actuaries, have assumed to organize the plan by which the whole business of life insurance has been done. They have established a routine system of uniform premiums, upon a basis of a general average length of life, without regard to cases.

It is not derogating from their true secondary importance, to say that they have arrogated to themselves functions that they are not qualified to perform. They might as well take the entire charge of the science of medicine, and institute formula upon some plan of general average of cases, by which a physician should prescribe for his patient, when the treatment, the kind and quality of the medicine, must, for success, be adapted to each case, by experienced skill and sound judgment, enlightened by scientific knowledge.

It is not too much, nor is it intentionally discourteous, to say, that mere mathematicians are not men of science, except in a very limited sense. Their modes of thought and reasoning lead them into erroneous processes, when they attempt to apply their methods to science, particularly the science of life. It cannot be brought within their province, nor, like inert matter, be subjected to their

mechanical routine formulas. Mathematics should never be thus misapplied. It should ever be remembered, that while science always includes mathematics, this can never comprehend science.

Mathematics alone is not competent to deal with the complex phenomena of real life. When by assumption or compulsion it attempts so to do, it always, as in case of life insurance, becomes responsible for grave errors and inequities. Thus discredit is brought upon the science, since it is expected to work out perfection. Educated and experienced medical men should be considered the nervous centres of life insurance. They only are truly qualified to plan correct modes of insurance. They should take these matters into their own hands, and elevate life insurance to the dignity of a co-division of the profession. In fact, it is a department of physiology in which professional men alone are qualified to take the first place. One of the noblest institutions of human origin, it is worthy the devoted attention and most enthusiastic earnestness that can be bestowed upon it by what has been justly called "the most benevolent and humane of the professions."

In the same lofty spirit ever actuating the best members of this ameliorating profession, let the talents and attention of those qualified be devotedly given to managing, improving, and developing this grand institution. Let them elevate it from the lower level of speculation and mere money-craft, to the higher plane of true science and humanity. They should not only claim and be permitted to have this privilege, but, by the intelligence of this enlightened age, should be required to hold that position, and use that influence, in the management of life insurance, that will not only tend to the honor of the profession, but which alone can elevate this noble institution, so that it will be universally regarded as a blessing to all mankind.

PHYSICAL INDICATIONS OF LONGEVITY IN MAN.

One of the \$500 Prize Essays.

[WRITTEN FOR THE AMERICAN POPULAR LIFE INSURANCE COMPANY.]

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THE evidences of prospective longevity, though not always to be regarded as positively reliable, are of such character as may, to a great degree, afford assurance of the physiological condition from which the prospective viability of the individual may be reasonably deduced.

There are certain anatomical and physiological facts upon which life is *immediately* and *continuously* dependent, and others upon which it is only *indirectly* dependent. The first of these two classes must of course be positively and thoroughly existent and operative, and in sound and healthful condition, in order to insure a favorable prognosis of long life.

The circumstances alluded to are set forth in the following tables :—

TABLE A,

Embracing the physiological circumstances upon which human life is immediately and directly dependent.

1st. RESPIRATION, the function devoted to the purification of the blood by the oxygen of the air.

2d. CIRCULATION, particularly in those parts connected with the

organs of immediate vitalization, viz. : in the brain and spinal cord, the heart, and lungs.

3d. INNERVATION, *i. e.*, the power of the brain and spinal marrow to maintain the action of the forementioned functions.

A *suspension* of either of these functions results in the instant loss of life, but either may be interrupted to a slight degree without that immediate effect, though not without affecting, proportionately, the vital powers of the individual. Thus certain diseases of the brain, the heart, or the lungs, may exist, interrupting the full and healthful performance of their functions, without positively suspending them; yet any degree of disorder among them must in a corresponding ratio affect the viability of the individual.

TABLE B,

Embracing the physiological functions by which the foregoing are aided in sustaining life, but whose impairment does not immediately reduce vitality unless greatly prolonged or very severe.

1st. DIGESTION, the conversion of food into blood.

2d. SECRETION, by which new tissues are formed and deposited, and the continued renewal of the entire body is maintained.

3d. ELIMINATIONS, including URINATION, DEFECATION, and PERSPIRATION, by which certain continually generated poisons are steadily removed from the system.

4th. MUSCULATION, by which the mechanism of respiration is effected, and the circulation of the blood and the tone of the other vital functions are invigorated.

These two tables include all the physiological operations upon which life depends—the first directly, the second indirectly; and their real force and activity may generally be ascertained by such a critical examination in each case as any experienced and practical anatomist and physiologist is able to make.

PHYSICAL SIGNS OF SOUNDNESS.

The physical signs indicative of soundness and vigor in these functions vary somewhat in different individuals, but in general each will present evidences which, to an acutely-discerning eye, ear, and touch, will not convey an erroneous impression.

Thus, as regards *Respiration*, the proof of its amplitude, healthfulness, and completeness, are established by, 1st, the dimensions of the chest; 2d, the freedom and fulness of its expansion (and in this operation the action of the abdominal muscles, which involves the movements of the diaphragm, is of much importance); 3d, the auscultatory sounds throughout the entire pulmonary area.

The movements of the chest being solely produced by muscular action, partly voluntary and partly involuntary, the degree of muscular development is a matter of much consequence in this connection. Therefore an individual having a strong and well-developed muscular system, and especially of the chest, is to be regarded as possessed of the first element of vitality and longevity.

To these demonstrations of healthful respiration may be added that of the *Voice*; its clearness, sharpness, and power of prolongation, being important indications of free, full, and healthful respiration.

The exercise of the voice in singing, especially in making prolonged musical notes, is a means of cultivating the respiratory muscles, and producing a greater expansion of the chest, whereby a larger amount of air is inhaled, and the purification of the blood more effectively secured.

As regards the *Circulation of the Blood*, its healthful character is known, 1st, by the normal tone and regularity of the heart's action; 2d, by the steadiness, fulness, and universal presence of the pulse wherever an artery can be naturally felt; 3d, by the uniform development and freedom from obstruction of the venous circulation.

Variations from these standard physiological facts are to be

regarded as evidences of obstructed circulation, generally organic in character, and hence proportionately interfering with the individual's safety.

The indications of integrity of the *Nervous System* are derived partly from its mental and partly from its physical manifestations. Placidity of temperament, soundness of the senses, regular and sound sleep, and healthfulness of the muscular and other functions dependent upon it directly, are the principal evidences to be relied upon in connection with longevity.

IMPORTANT CONSIDERATIONS.

A very important consideration relates to the early medical history of the individual. Having once had all the so-called "diseases of childhood," as measles, scarlatina, &c., the subject is relieved from the danger incident to their appearance, except that the *sequences* of those ailments are sometimes found to have slightly impaired the integrity of the constitutional powers.

A far more important subject of inquiry is, whether the applicant has ever been the victim of syphilis, although all visible manifestations of it may have long and totally disappeared. This poison is often more profoundly, protractedly, and insidiously concealed than any other, and its influence is sometimes revived at late periods of life, after it has been supposed to be completely eradicated, and even its former existence forgotten. It is, therefore, unsafe to calculate upon the longevity of one who has, even in very early life, been a victim of it, though there may be no evidence of its presence.

PERIOD OF GROWTH.

A circumstance of great importance in relation to the subject under consideration, is *the time required for the full growth and development of the body*. According to the rule laid down by Buffon, those who are slow in arriving at full growth, should outlive those who advance more rapidly to that point. Though a man may ar-

rive at his highest stature at the age of 16 or 18, yet his body may not be entirely developed before the age of 30, and in that case he is more likely to live to 90 or 100—being three times the period of his growth. *The danger of premature growth is premature death.* On the other hand, an increase of size after the age of 40 cannot properly be regarded as a token of vital energy and healthful constitution. The augmentation of volume after that period is not a true organic development, but merely an accumulation of fat. Such an extension, as Buffon very properly remarks, is not a continuation of the development, or internal increase of each part, whereby the body will attain to greater strength and activity; but it is simply an addition of superabundant matter, adding uselessly to the volume and weight, without invigorating it. This tendency to the accumulation of fat is also likely to involve the structure of the heart, and thus impair its action, producing almost inevitably a fatal result.

Good teeth are an indication of a good constitution, especially in this country, where decayed teeth are more the rule than the exception, and indicate a deficiency of certain materials in the organization, upon which the whole bony structure depends for its soundness. The existence of perfect teeth in middle age may be regarded as evidence of soundness of the other portions of the osseous structure, and as being derived from a true hygienic mode of living, especially as to diet, from infancy forward, and is hence an indication of general vigorous organic and constitutional development.

IMPORTANT POINTS.

The *vocation, residence, and manner of living*—independent of all personal and hereditary traits,—present circumstances of great importance in connection with health and longevity, and should therefore be carefully inquired into. As a general rule, *out-door* and *active* occupations have a far better hygienic influence than the *in-door* and *sedentary*, for the double reason that pure air and muscular exercise

are their more certain concomitants. The character of many vocations is well known to be such as not only greatly to reduce the natural purity of the air inhaled, but in some instances actually to generate poisonous gases, which, when inhaled, have a more or less pernicious influence.

The homestead, also, sometimes subjects the occupants to health-injuring influences, both by outside and inside circumstances. Malarious surroundings have long been known to give rise to fevers of various types, but in these later years, the influences alluded to appear to have greatly increased, both in extent and degree. Says Professor Flint, "We think there cannot be a doubt that a striking change has taken place within a few years past, and that Typhoid Fever, from having been, to say the least, of unfrequent occurrence, has become frequent, and is becoming more so; remittents diminishing in frequency after the same ratio."

The character of an applicant's residence, in reference to its sanitary influences, is therefore a matter of much importance in connection with the prospects of life, and the question refers both to external and internal circumstances. Thus, a dwelling may be well situated with regard to outer air and light, and free from all external malarious influences, yet its interior arrangements may be decidedly objectionable from the presence of retained excreta, decaying animal and vegetable *débris*, imperfect drainage, deficient ventilation, &c., which constitute, to a large extent, the sources of fever alluded to, as having greatly increased in latter years. Very numerous examples of this truth might be cited.

The occupants of many private residences, both in rural and urban districts, are subject to the same influences and results, of which we have almost daily proofs.

A thoroughly sanitary residence is therefore an essential element in the prognosis of longevity.

ANCESTRY.

Good ancestral history will of course add largely to the favorable

indications of the person, though parental diseases contracted subsequently to the child's birth will not necessarily affect the latter. Another fact to be considered here, is, that a healthy constitution depends more upon the mother than the father.

An important consideration is the general conformation of the body; imperfection of structure gives opportunity for the occurrence of local diseases, which may lead to premature death, while a uniform and faultless conformation is more likely to resist evil influences, affording a strong natural power of restoration and healing, indicative of a good circulation, and perfect state of the absorbents and organs of secretion.

With regard to the relative longevity of the two sexes, the tables of assignable annuities for lives, kept in Holland for 125 years, show that a given number of females lived about 3 or 4 years longer than the same number of males. The applicability of this theory to the United States is somewhat doubtful, though the writer is not aware of the existence of any reliable statistics from which to draw a conclusion.

PHYSICAL TRAINING.

In studying the probabilities of longevity in any particular case, the nature of the education, both mental and physical, constitutes an important incident as it occurs both in youth and early manhood.

As a criterion of a proper and judicious mode of cultivating the physical and mental faculties, for the maintenance of health and the prolongation of life, the following passage is quoted from Cardinal de.Salis, who died in 1785, aged 110 years.

"By being old when I was young, I find myself young now I am old. I led a sober and studious, but not a lazy or sedentary life. My diet was sparing, though delicate; I rode or walked every day except in rainy weather, when I exercised within doors for a couple of hours. So far, I took care of the body; and as to the mind, I endeavored to preserve it in due temper by a scrupulous

"obedience to divine commands. By these means I have arrived
 "at the age of a patriarch, with less injury to my health and con-
 "stitution than many experience at forty."

The deficiency of physical education in youth, especially with females, in modern times, is one of the most serious drawbacks of health, manifesting its results in middle life by a general imperfection of almost every function of the system, particularly of the muscular, respiratory, and nervous powers, upon which the vigor and healthful tone of the body more especially depend. Another powerful cause of physical deterioration, in females especially, is their mode of dress, restricting as it does their respiratory function, and thus adding to the indisposition for physical exercise.

On these accounts, as well as others, the physical education of both females and males is essential, and demands the careful consideration of every parent and child who desires good health, in both youth and adult age. The fact of such an education in youth would constitute as valuable a consideration, *ceteris paribus*, as a good ancestral history, in estimating the probable longevity.

The characteristics presented by brothers, sisters, &c., should influence the judgment only as they actually exist in the individual under examination, and as they are attributable to a common source,

It not unfrequently happens that both feeble and strong constitutions, poor and good health, and premature death and longevity, are observed in members of the same family.

In conclusion, I present the following:—

PORTRAITURE OF A MAN DESTINED TO LONGEVITY.

A fully developed *osseous frame* and *muscular* organization.

Stature not too tall, rather middle size, somewhat thick set.

A capacious *Chest*.

Shoulders rather round than flat.

Pulse strong and regular.

Veins full at extremities.

Head not too large.

Neck neither very long nor short.

Abdomen not projecting.

Hands large, but not too deeply cleft.

Foot rather thick and broad, than long.

Skin strong, smooth, and clear.

Complexion not too florid, nor too ruddy in youth.

Hair approaching rather the fair than black.

Voice strong, with faculty of retaining the breath long without difficulty.

Senses acute and clear, but not too delicate.

Appetite good, and *digestion* easy.

Teeth sound, eats slowly, without extra thirst.

Excretions all regular and free.

No violent passions.

Temperament sanguine, with a little of the phlegmatic.

BRIEF APPLICATION

OF THE

Doctrine of the Essays and Exposition to Medical

EXAMINATIONS FOR LIFE INSURANCE.

THE preceding Essays and Exposition place before Medical Examiners of the American Popular Life Insurance Company some suggestions which will enable them to serve the interests of the Company to a high degree.

It will be seen that the Company desires not only the facts which bear upon present health, but also all which point towards the probable length of life. It is proper to remark here, *that there are a thousand little things, often thought of no importance, that are of great consequence as indicators of the probability of the length of life.*

Let medical men bear this in mind, and send in to the Company the results of their observations. It will with great pleasure publish them to the world, as it intends to encourage and patronize every effort to increase knowledge of this kind.

Physiognomy of Disease.

The physiognomy of incipient disease presents a very important field for observation and research. This is effectively illustrated by the admirable portraiture of one or two diseases by the skill-

ful pen-pencil of Dr. C. L. Hubbell, in the brief extract from one of his papers hereafter given.

By skill in observation, incipient disease lurking in the system may be detected before even the person himself has had occasion to suspect it, greatly to the advantage not only of the insurance company, but of the person himself. This physiognomy consists of such indubitable and evident signs, or more properly speaking, indications, that they should not escape the recognition of even the ordinary professional observer. But what is in fact of the greatest consequence is a thorough knowledge of all the indications by means of which the lifetime of a man can be prognosticated.

Natural Differences Exist.

There cannot be a doubt that there is a difference in the lifetimes, or capabilities of living, of different individuals. This must spring from a difference in constitutions, *which should be observable at the surface of the body*, for there must be a harmony, a perfect relation between all parts; such, that as one is, so is another. We know that there are great differences in the appearances of men, which doubtless mean more than is usually assigned to them. Some of the peculiarities of men exhibit nothing bearing upon, nor having relation to the length of life, while many others would speak to the fully enlightened mind of facts both interesting and valuable.

It is therefore desirable to have Medical Examiners give as complete pen-portraits of the applicants as possible.

They will observe leading questions in the applications of this company indicating a method for doing this.

Of course it is not expected that the Examiners will conclusively decide upon the relations of these facts to the probable length of life.—Such duties devolve upon the officers at the Central Office, where these and all other similar matters are collated.

Something More than usual Necessary.

In other companies persons are accepted or rejected mostly on the testimony in regard to present or approximate health; in this, no one is rejected, but all risks are considered equally good (not equally profitable) if premiums are made sufficiently large to cover the average cost of each class. The Company therefore does not desire the opinion of the Examiner as to the health merely of the applicant, but it desires also all the attainable facts bearing upon his *probable length* of life, seeking not only the opinions of the Examiner, but each and all the facts upon which the opinion is based.

Often an Examiner says, "I think him about the average; probably will live ten or fifteen years, perhaps twenty." The other day this was said of a person forty years old, whose "expectation," according to the table "average," is twenty-six years. Therefore, in the opinion of that Examiner, he is, at best, six, and perhaps ten or fifteen years below the average, and therefore cannot be "about the average."

By looking at the "Expectation" Table the Examiner will see against the age of the applicant the "expectation" of that age. If, then, being experienced in observing men, he asks himself, will this man probably live out his "expectation," without going into the philosophy of the case or analyzing the physiognomy, he will almost instantly arrive at a right conclusion.

If he looks at the physiognomy ever so closely, examines the case ever so thoroughly, but does not look at nor remember the "expectation" of the corresponding age, he will almost surely speak too favorably of an applicant, especially if unhealthy.

1st. Let medical examiners daily observe men for the purpose of noticing the relations between indications and length of life.

2d. Let them give as accurately as possible a complete physical description of the applicant.

3d. Let them inquire particularly into the *habits* of applicants, and politely but *definitely* learn what they are, remembering that the use of intoxicating drinks and opium is common and will often be concealed or passed, if possible, with slight mention, unless brought out by direct questions which should be put without fear or favor.

4th. Let them use the tables when giving their opinion of how a person may be insured, more particularly if he is not healthy.

5th. Let not the examiner determine that because the applicant is in perfect health he is a first-class case unless all the elements of a first-class case exist, such as ancestry, etc.

The question "Above or below the average?" is asked.

By average is meant, a person who gives good promise of living out the table "expectation" of his actual or present age.

By "Degree?" is meant the proportionate number of years that he can probably live above or below that number of years which is called his actual age "expectation," as found in the table.

The Average of those Failing to reach "Expectation."

It should be noticed here, that those who do not live up to the "expectation" of their age average to fall short of it about one-half. For example, the "expectation" of 25, Farr's Table, is 36 years, or to 61. Now those living at 25, who do not live to 61, average to live to 45; those who do not live to 45 average to live only to 35; those who do not live to 35, average 30; those who do not reach 30 average 27. These figures are nearly exact, being computed from the tables of the living and dying at each age.

It is interesting and practical to notice that those who from any age do not live to another age, average to live very nearly one half the difference.

This illustration shows how rapidly the average falls off if a person is not up to "good." If a person of 25 cannot live to 61,

he should be put at least into the class living to average only 20 years; this is the "expectation" of 50. Therefore the premium of 50 is as small as he could be allowed. If he should fall into the next class, he could only have an expectation of 10 years allowed to him, which is that of 66.

It is therefore seen that the rating of impaired lives, whether unhealthy, short-lived by inheritance, or impaired in any way, runs up very fast. To say of an inferior life that it is "about an average," or a "little above the average," will usually be giving too favorable a view of the case; it must be remembered that considerable stamina is required to enable a person to live 10 years, and that the age of 66 has 10 years' expectation.

On the other hand, extra good lives tend toward a low rating less rapidly.

In examining cases, it is desirable that the Examiner should apply his mind scientifically and philosophically to comprehend the case fully in all its relations to insurance values; and he may rest assured that the Company will receive his reports in the right spirit, and treat them in such a way as to bring light out of the darkness that has prevailed, and as much as possible elevate the practice of Insurance Examinations.

An Unbiased Judgment Wanted.

The Examiner is not to consider himself in the least degree bound to please either the Applicant, the Agent, or the Company by giving any gloss, or any adverse view of the case.

He is to examine the case conscientiously, professionally and honorably; keep his own counsels, *answer no questions of Applicant nor of the Agent about it*, but transmit his report to the Company, and send to it his bills. If any complaint is made of the time taken, or of the thoroughness of his examinations, let him understand that the Company will support him in doing his duty.

It is a cause of regret that only a small space can be allowed for extracts from an excellent paper by Dr. Hubbell of Troy. It is to be hoped that he will be induced to enlarge it, and present it to the public in a desirable form.

Too much commendation cannot be bestowed upon a work upon Medical Examinations by Prof. J. Adams Allen of Chicago. His rare and accomplished abilities as a scholar and a teacher, and his experience, have enabled him to present an Examiner's duties in a remarkably lucid manner.

A brief dissertation edited by Dr. Morland of Boston, is also worthy of especial notice, as it evinces a proper appreciation of the subject by the author, Dr. Brinton, of England, and a still more thorough understanding of it by the Editor. It is unfortunately, like many good things, not very much disseminated.

THE MEDICAL EXAMINER'S MANUAL, by Dr. Gloninger, of Philadelphia, is a pamphlet containing much that is valuable, and should be read by every Examiner. We cannot help making a few extracts, they are so apropos :

"The person desiring to be insured is different from the con-script. The latter purposely makes his case look worst. The applicant for insurance can see no flaw in his physical organization. He is *strictly temperate* and will often be offended at the physician, should he presume to lay bare at some unguarded moment a constitution unfitted as a safe risk for any life institution. The physician should know neither friend nor foe—his duty is bound up as an honorable man in the company he represents; he obtains his remuneration, and for the time being he surrenders the special amenities of his profession and becomes as stoical as a judge.

"On this point insurance companies should classify the risks, all things being equal. The strictly abstemious man should be marked first class, and the gradations should be in proportion to the indulgences, as seen and known, of the insured. No one will

write himself down an inebriate, yet there must be a beginning somewhere, and the medical man is asked the question direct, Does anything in the party's figure, general appearance, manners or conversation, indicate ill health, feeble constitution, irregular or intemperate habits? What? To a conscientious Examiner no mining of words is necessary. Yes or No.

"Much stress is laid by some companies on conformity with tabular statements. * * * No greater mistake can be conceived of, than this. * * * Judgment should certainly have some consideration in every case. * * * There are certain families—very long-lived—running back many generations—where great deviations are observable, and graded by the above standard, would be counted altogether abnormal! Yet they live out the full expectation nevertheless! We have in medical examinations a little more to look to than power of endurance. The scrutiny of the physician is much more comprehensive.

"Were it not better to lay less stress upon statistics and take such as mere stepping-stones in the furtherance of a more rigid diagnosis? We conceive it to be an invitation on the part of the company to the examiner to give minute attention to 'development' and nothing further.

"Temperament is a more important feature, however. It mirrors the man. Is he plethoric? we have a guide which will bring us at once to the scrutiny of his blood-vessel system. * * * * * Will you reject because the applicant does not fully come up to three inches expansion? An adhesion may be cause to predicate an objection, but the sounds being normal, the risk might be accepted under a classification, graded as we suggested in our former article—First class, Second class, etc. * * *

"Expectation based upon the Carlisle table, for rates of insurance, will answer all purposes, but as a mortuary guide is unsafe

and unsatisfactory. It reduces intelligent opinions of the medical man to mere guess-work. We conceive that the question of occupation has far more to do with the value of the risk proposed and the lease of life, and should take precedence in the medical man's 'prognosis.'

* * * *

"When the applicant is under thirty-five and has a delicate constitution, the family history being not first class, and hereditary taints of one kind or another cropping out here and there, it will be well on the part of the medical examiner to hasten slowly in his acceptance. We would not say that this rule should be general and sweeping—there are many exceptions—a man's personal good habits, his occupation and locality, may ward off impending evils, but the interest of the company demands that after weighing well *pro* and *con*, it would be advisable to consider all such as impaired lives, and classify accordingly. When the individual has cicatrices in the region of the glands, his complexion unhealthy, general locomotion languid, and circulation torpid, with a bad family history as far as hereditary diseases are concerned, however much his physical organization may show a good development, it will be well to enter a doubt in his case.

"Information as to the health of the individual can only be obtained from the insured. He is asked certain questions. Upon his answers the company base their action. They ask what their experience and knowledge have taught them is material. The insured is always specially notified that upon the absolute truth of his answers depends the validity of his policy. If the answers are untrue, the basis of the company's calculation fail. The proportion of deaths in a given time is greater than was expected; the company cannot pay its losses, and insolvency and ruin are the result. Who suffers the loss? Not the officers, for they have their salary; not the stockholders, for there are none, the company being

mutual, but the policy holders who have told the truth in their applications, must suffer.*

"If an examiner with an every-day practice can have but an hour to spare at an insurance office, and is expected to pass on the merits of half a dozen or more cases, when, as will be perceived, to do his duty and review one case, might require as many hours, is it a wonder that so many cases are passed as coming up to expectation, that die years before the time, especially when the merits of the case have to be so summarily dealt with? We submit the idea, whether a reform in this quarter is not as essential as an actuarial calculation on prospects of longevity and means to enhance the interests of companies in computing new tables and rates. It is all well that companies should be prudently managed; no one of the insured will find fault with that. Yet it is to the interest of every company that their medical examiner should be chosen 'among the best of men,' and paid in proportion to his responsibility.

"Every company should demand a *photograph* of the insured.

"Each examination should be strictly confidential, and stand only between the company and the examiner, exclusively of the agent furnishing the risk. There should be no knowledge as to result of examination until the decision is received from the central office."

* A clear-headed writer in one of our journals writes the following:

"FRAUDULENT REPRESENTATIONS.—We have, at last, one important decision, which should settle the law as to fraudulent representations by applicants for life insurance. *Falsus in uno, falsus in omne*, ought to be especially applicable to the preliminary written statement of every applicant for a policy of life insurance, since the character of such statement precludes the idea of forgetfulness or mistake. No respectable life office ought to be intimidated or deterred by fear of popular prejudice or clamor, from thoroughly educating the community up to the *judicial fact* that it is no more *safe* to attempt to swindle in this than it is in any other way."

* * * A case has recently occurred in which a woman advanced the money necessary to insure largely her dissipated husband in several companies. He succeeded in imposing himself upon them, and after several debauches died within a few months, and the woman drew the money except from one company, the American Popular, which gave a conditional policy and only paid back the premiums. By whom were these large losses of the other companies paid?

EXTRACTS from a valuable paper on "*Medical Diagnosis and Prognosis, with special reference to Medical Examinations of applicants for Life Insurance.* By C. L. HUBBELL, M. D."

"IF there be one consideration on which, more than any other, the highest degree of success of Life Insurance Companies depends, it is the proper discharge of the duties of the medical examiners of such companies. That these duties are too often thought to consist in a simple routine of superficial examination, there is no doubt, and when agents, over-anxious for their commissions, and ignorant, unskilful, and hasty examiners meet, losses ensue, *which are in reality a fraud upon all the sound lives insured.* A few months since, a man in this city died of "Bright's disease," within a year after having effected an insurance upon his life. The disease existed at the time the insurance was effected, and might then have been easily recognised, had the proper tests been applied. Two in this city have died, within the past two years, within eighteen months of the date of their insurance, largely insured, who though not suffering at the time of their insurance, from any special organic disease, and looking comparatively robust, yet had chronic alcoholism plainly written in their faces. They were able to attend to business—were never drunk, and I will add, *never* sober. They should not have been imposed upon any company.

"Numerous cases are now under my observation, of individuals largely insured, struggling against chronic disease, some of them daily violating the laws of health, whose lives can last but a few years at the most, and should never have been insured, except at rates increased, in proportion to their probable longevity. Is it not then apparent to stockholders, and to policy holders in Life Insurance Companies, to companies doing business under all the different plans, that in order to secure moderate rates, and large dividends, there must be no unnecessary losses?"

"Every variety, both of *physique* and *morale*, are presented to the examiner for life insurance, and it becomes him to be familiar with the earliest indications of constitutional disease, whether hereditary or aquired. *His powers of observation should be naturally keen, and they should be cultivated, and strengthened, by closely watching both healthy and diseased men from day to day, and year to year.* If to such powers be added scientific knowledge, familiarity with the sounds elicited by auscultation and percussion, and the phase of countenance peculiar to different diseases, and a heartfelt interest in his duties, the human body will be like an open book before him and his blunders will be few."

How to Conduct an Examination.

"In conducting an examination for life insurance, the examiner should bear in mind that in his relation to the applicant, he occupies a position precisely opposite to that of a physician to his patient.

"The patient seeking for relief from infirmities and disease, is anxious to lay before his physician all his symptoms, and even to magnify them, but the applicant for a policy, may be anxious to conceal them entirely, or pass them by as trivial.

"However unpleasantly this remark may reflect upon the honesty of the community, it is human nature. Men are too apt, in all worldly transactions, to consult their ephemeral rather than their permanent interests.

"Examining surgeons of boards of enrollment during the late war, will recollect how feeble some sound, robust men endeavored to appear, when anxious to avoid the draft, and also how strong and healthy the really broken-down and diseased suddenly became at a later period, when large bounties were offered.

"Yet I think the number is comparatively small, of those who deliberately insure their lives with fraudulent intent. Occasionally,

however, of late, such cases have reached the tribunals of justice, where both the moral guilt of the assured, and criminal carelessness or ignorance, or both, of the examiner, have been too apparent.


“ Though it is not probable that applicants for life insurance do often wilfully, and with premeditation, misrepresent their condition, I believe they sometimes say to themselves something like this : ‘ I do not feel that I am a perfectly sound, well man, or that I am long-lived, but if the Company are anxious to insure me, it is their business to find out my condition, and the risk is theirs,’—or like this : ‘ I have had a slight cough for some time, have lost flesh and strength, some of my friends have supposed that I had consumption, but my cough has disappeared, and though not quite strong yet, I weigh almost as much as ever, and feel well,—now is a good time for me to get insured.’

“ Has not almost every physician of some years’ observation and practice, witnessed just such cases of chronic phthisis, in which periods of repose occurred, the tubercular deposit having been absorbed, or softened, and small cavities in the apex of the lung closed up, or in which, as Pollock says, the deposit is tolerated ?

“ How important, then, to recognize such conditions when they exist, for the disease though slow is none the less sure. Such patients are apt to be sanguine, hopeful, possessed of vivid imagination, and, confident of having no lung disease, they are anxious to impress others with the same belief. Indeed, this mental delusion is so apt to be associated with consumption, that it may almost be regarded as a symptom of the disease.

“ One great point for the examiner to recognize is constitutional disease, whether hereditary or acquired, and the tendencies to such disease. This implies a thorough inspection of the applicant, a knowledge of the physical and rational signs of disease, and often a close questioning of the applicant, with all the skill with which a lawyer sometimes examines a witness.”

The Place for Examination.

"Examinations for Life Insurance should always be made, either at the office of the agent, or of the physician, or at the residence of the applicant, and by no means at his shop, or counting room, or place of business.  *They should be made, too, in private.*

"The presence of friends, the din and clatter of machinery, the rapid pulse and respiration produced by muscular exertion and nervous excitement, all interfere with a proper and thorough examination. The applicant should be made to feel, as much as possible, entirely at his ease, so that there may be no emotional agitation to accelerate the pulse, or mask the evidence afforded by the respiration."

Method in Making the Examination.

"In making the examination of an applicant, the examiner will, of course, be guided to a certain extent, by the blanks prepared by the Company, with questions for him to answer. These vary very much in the number of questions, and arrangement of organs to be examined, and of course, in the method by which the attention of the physician is directed to the physiological and pathological condition of the applicant. It is well, therefore, for him to have a method of his own, to assist him in arriving at correct conclusions, rapidly and accurately, and this being observed, he will have gained a knowledge of important facts, and be able to write out at once the answers to questions.

"Technicalities should be avoided in asking questions, or if used at all, proportionately to the intelligence of the individual. Very many persons, well informed on most subjects, are sadly ignorant of anatomy and physiology, and know nothing at all of pathology.

"If asked whether they ever had a hemorrhage from the lungs, they would be quite apt to say 'No,' but if asked, 'Did you ever spit up any blood,' they might say 'Yes.'

"Should the conformation of the body, the relative weight and height, the general appearance, the condition of vital organs, all indicate a sound, healthy individual, then inquire, 'Have you *ever* been sick?' The answer to this question may show some special disease to which the applicant is most liable, and which may at some future time (if it has not already,) somewhat impair the general health.

"The answer to the final question, 'Do you advise the risk,' or 'Do you recommend that a policy be issued,' should be decided Yes, or No, and should any facts have been elicited in the examination bearing upon the decision, and not embraced in any of the questions, these should be stated under the head of remarks. Without such explanation, upon a review of the examination at the central office of the Company, by its medical board, a very excellent risk may sometimes be declined, or a comparatively poor one accepted."

Indications afforded by the Figure and Countenance.

"A general view of the person will often enable the accurate observer to detect at once the existence of serious organic disease, or constitutional tendencies. For example, a man is presented who has a short neck, red face, stout figure, and puffing from the exertion of his walk; at once, there is ground for apprehension that he may some day die of apoplexy, or some of the lesions incidental to a plethoric condition of the system, and if, upon inquiry, it appears that he has occasional attacks of vertigo, and pain in the head, and has perhaps noticed a slight numbness in one leg or arm, or a little difficulty in articulation, you can but report him as impaired. Another comes in, whose face, instead of having the slight carnation tint of health, is of a clear, pale hue, with the pupil of the eye dilated,*

* The size of the pupil in ordinary light, unless produced by medicine, is almost a sure criterion of the vitality of a person. If the measure of life is large the pupil will be small, if the vitality is small the pupil will be comparatively large.

the conjunctiva of a pearly white, and withal having, though a sickly, yet a bright, cheerful look; if the conformation of the chest is noticed, the breathing just a little hurried, as he converses, and it is ascertained that he is slowly losing flesh, though no cough may be present, incipient tuberculosis, may be suspected."

Consumption—Its early Physiognomy and Indications.

"This is the great scourge of the human race; it is also the greatest cause of losses to Life Insurance Companies. How important, then, to detect it early.

"It is to be regarded not as a disease of the lungs, merely to be revealed by auscultation; it is a disease of the whole system, a constitutional disorder. When the physical indications of deposits in the lungs are present, not premonitory symptoms, but actual disease exists. Viewing it as a vital blight; that in the animal kingdom as in the vegetable, affects the circulating and nutritive fluids by attacking the organs of assimilation and respiration, we may ask, what are the earliest indications of the impending disorder? Are there any which will enable us to say of a person who has not any cough, never had hemoptysis (bleeding from the lungs), whose inheritance of tubercular disease cannot be distinctly traced, and in whose lungs the most skillful auscultation and percussion do not indicate any deposit—he will die of consumption? The answer is Yes.

1st. The *countenance* exhibits a peculiar pallor, a loss or want of the flush of health, which frequently is not excited by active exercise or if it is, it quickly subsides: the pallor is habitual, slight fatigue increases it. This is not the case afterwards, when the softening of tubercles excites the hectic symptoms and colors the cheeks.

2d. The *pupil of the eye* in a large majority of cases of persons inclined to tuberculosis, is dilated; the conjunctiva over the sclerotic coat of the eye exhibits a clear white, its vessels seldom being

injected appear small and indistinct, and it has a lustre, a brilliancy, not observable in other diseases nor in persons not having a tendency to consumption.

3d. The *teeth* exhibit a pearly whiteness in almost all cases of hereditary tendency to phthisis. This indication is especially marked in those of a sanguine temperament who have a scrofulous diathesis. One whole family, is now in mind, all the members of which, parents and children have died of consumption within a few years of each other, all of whom were remarkable for the beautiful whiteness of their teeth. The disease when it appears in persons of this temperament, is apt to be rapid in its progress and accompanied or preceded by profuse and exhausting hemoptysis.

I have not noticed the above mentioned appearance of the teeth to be described in any medical work as an indication of consumption, but I have repeatedly called the attention of medical men to its value in diagnosis. It may be considered as almost unerring. Plain looking teeth with enamel of a yellowish hue, require less of the dentist's skill and belong to constitutions that less frequently have need for medical aid. Questions should be asked in the medical examination, such as will bring out the character of the teeth as a basis of judgment on the case.

The red line around the border of the gum first noticed by Thompson, is sometimes a mere faint streak, while in other cases it is well defined, and in either case indicates scrofula.

4th. *Emaciation*, loss of flesh, wasting, are among the earliest and most unfailing indications of incipient development of consumption; its *occurrence without sufficient apparent cause is always* diagnostic. Though the appetite is good, the supply of food regular and abundant, though there is no drain upon the system, the emaciation goes on steadily, though perhaps very slowly. It is more marked and more perilous in those who have been stout. It is also more decided in persons of middle age in whom nutrition has been for a

long time somewhat impaired. With the emaciation there is associated a sensation of weakness, a lassitude and a shortness of breath that betokens the impending disease although the stethoscope does not detect any physical indications, except there may be a slightly prolonged expiration. The present weight of an applicant is not, therefore, all that should be asked for; he should also say what his usual weight has been, and if he has been recently losing in weight.

5th. The *ends of the fingers* frequently have a peculiar appearance known as clubbed. Though not common to a decided degree in the early stage of the disease, where it exists, it is of much diagnostic value, especially when associated with other indications; not only when the last joint is enlarged is there an indication, but also when the nail is curved, being prominent in the central part, depressed at the sides, its surface slightly cracked, and its color bluish; while in substance it is brittle and dry. It may also be noticed that all the horny parts, the cuticle, the hair, etc., are dry and harsh. Though the hair is apt to be fine it will be dry, split, and have a "foxy" appearance, while, also, it is apt to be thin, especially near the crown of the head.

6th. *Bleeding*, though by no means pathognomonic of phthisis, is often a very early symptom. It may be the first recognizable symptom. A young physician whose first warning was bleeding from the lungs, had neither cough, nor emaciation, nor any other symptom previously, nor did auscultation nor percussion detect any deposit of tubercle in his lungs. After more than a year had elapsed another hemorrhage like the first occurred, not however preceded by any cough, but speedily followed by the well marked symptoms of phthisis; tubercular deposits were soon detected in his lungs, and a short time after death occurred.

"That hemoptysis occurs in certain forms of heart disease, in pulmonary gangrene, in cancer and cirrhosis of the lungs, and often

in females as vicarious of menstruation, there is no dispute. Let these cases be carefully excluded, and hemoptysis or bleeding at the lungs is a frequent and important symptom in consumption. It often precedes the development of tubercle, by a long term of years. A late Professor in one of our Eastern Colleges who died of consumption, at the age of fifty-seven, had his first attack of bleeding at the lungs at the age of twenty-six, after which, he lived thirty-one years, his disease making steady progress during all that time.

“ In the great majority of cases, a man who has had hemoptysis, although he may be apparently well, should be considered as tuberculous, at least in his tendencies. Such persons are too ready to conceal from themselves, and of course from their physician, the true source of the hemorrhage, and are apt to refer it to the throat, nose, or even stomach. Too often, also, the sympathising examiner, not observing other indications of phthisis, is led to believe and encourage the applicant to hope that nothing so serious as consumption is impending. This is very well in case of a patient whose hope may be his sheet-anchor, nor is it necessary to express a depressing opinion to an applicant, to whom, in no case in fact, ought any opinion to be given. *The examiner is paid by the company, not by the applicant, and to the former, and not to the latter, should an opinion be given;* and that should, in all cases, be confidential and without regard to anything else but scientific truthfulness. It is a purely business transaction, into which sympathy, generosity, or hope should not be allowed to enter; but equity and justice require that a purely scientific judgment should be given, such as will bear the test of time, since there is nothing so injurious to the reputation and success of the examiner as losses made through the errors of his examinations. In this disease, so insidious and so common, his reputation is particularly jeopardized; therefore, it behooves him to study thoroughly all the indications of its ap-

proach, and learn to detect it before its symptoms can be described, and severely decide upon their presence whenever they exist.

Bright's Disease.

"The increased frequency of renal diseases, their somewhat obscure manifestations, at least in their incipient stages, and their complication with diseases of other organs, either functional or organic, should lead "examiners" to great circumspection, lest symptoms should escape their observation, which, if noticed and traced, might lead to the detection of grave chronic diseases.* Christison says

* The increased frequency of renal diseases, mentioned by Dr. Hubbell, is partly apparent and partly real. Formerly but little attention was paid to the diseases of, or manifested through, the kidneys. The functions of those organs were considered as important, but their very great importance in the animal economy, was not, in the olden times, comprehended nor even guessed, and at the present time it is not generally fully appreciated.

If we consider the human system as composed of six systems, three passive, the osseous or bony, cartilaginous or gristly, and sinewy or fibrous, and three active, the nervous, muscular, and secretory, each corresponding to the similar named tissues, will it not appear natural that each of these tissues, differing from the rest in constitution, would have an appropriate organ through which the waste matter, or eliminations of the tissue, caused by its activity, would be thrown out of the body? This seems to be the case, at least as far as the three active tissues are concerned, which will be very apparent upon reflection if we allow the lungs to be also the chief expellants or eliminators of the products of combustion in the body.

The kidneys, under this arrangement, will be the emunctories, eliminators, expellants, or excretors corresponding to the nervous system, viz., adapted to remove from the blood the waste substances caused by the activity or decomposition of the nervous system.

It is a fact that the renal arteries are the largest in the body, next to the cranial arteries, in proportion to the size of the organs supplied; it is a fact that these renal arteries become larger the more active a person's nervous system; it is a fact that the solid eliminations of the kidneys increase and diminish with the activity of the nervous system. There is, therefore, organically and functionally an intimate relation between the kidneys and the nervous system.

that one of the earliest symptoms of 'Bright's disease' is the patient's rising regularly once or more during the night to pass water. This is, however, very apt to be done in advanced years, and is very common among the young and those in middle age, and is by no means a certain symptom; yet, in all such cases, it would be well to examine the urine carefully, both under the action of heat, and of nitric acid, to ascertain if it contains albumen in notable quantities; tube casts should be looked for through the microscope, and should these also be found, suspicions of the existence of 'Bright's

It is to be noticed that the functions of the kidneys are double, one the primary, the other the incidental, so to speak. The former is for the purpose of eliminating the solid elements, the latter for dissolving the solid elements and floating them away, and for the purpose of assisting in increasing the heat of the body. This is accomplished by the kidneys removing water from the blood, thus increasing the relative proportions of the heat-producing elements. The blood thus proportionately diminished in quantity and enriched, circulates more rapidly and generates more heat in the same time. This secondary regulating action of the kidneys in regard to heat, together with their primary function of eliminating the waste of the nervous system, calls for extraordinarily large arteries and veins leading to and from them, and suggests the idea that next to the brain and lungs they are most constantly active, and most subject to changes of their activities, of any part of the body; that therefore they will very frequently be found to be the seat of diseases; and that if there is a weakness of the body it will be likely to show itself first either in the brain, lungs or kidneys.

Formerly, this great liability of the kidneys to disease, was not thought of, but the more common use of the microscope and chemical tests in the investigations of diseases are daily disclosing facts important in regard to the diseases of the kidneys and their association with the debilities of the body. The increased activity of the nervous system in late years has also, doubtless, led to more frequent diseases of the renal organs and to a largely increased reflex effect from them upon the body at large. Hence we deduce by reasoning, and prove by actual observation, that the diseases of the kidneys and the indications of those diseases are among the most important matters for an examiner to carefully observe. Rheumatisms, gout, dropsies, general debilities, nervous excitements, will or should suggest to the intelligent examiner, the importance of exploring the urine, and observing all the indications of functional derangement of the renal organs, not only to learn their condition but the constitutional condition of the whole body, and its tendency to any constitutional diseases; consumption, etc., etc.

disease' may properly be entertained. It may be months before there are any marked external indications of its progress, which, however, will sooner or later be certain to appear. Usually, the earliest noticeable special symptoms in connection with a general debility and *malaise*, is the puffy œdema, or dropsy about the eyelids, especially in the morning, which may nearly disappear toward night. It is singular that diseases of different organs should produce œdematous or dropsical appearances in different portions of the body, that thus become indicators of diseases in remote organs and not apparently related, either functionally or by structure. Cardiac derangements and those of the circulation are apt to produce dropsical swellings of the feet and ankles, always most apparent at night, while hepatic derangements, if causing dropsy, are more often at first associated with ascites or dropsy of the abdomen.

"In incipient 'Bright's disease,' especially if associated with any cardiac trouble, the countenance usually assumes a waxy hue, so very different from the pallor of consumption, the straw-colored skin of malignant disease, or the olive tinge of the chlorotic female, that it can hardly be mistaken. It might be confounded with the complexion exhibited by anemia, but in this disease the contour of the body is more apt to be preserved, while the absence of a healthy color on the lips is more striking. When in the semi-transparent waxy skin of the cheeks, the minute blood-vessels exhibit a quite distinct, enlarged, stellated appearance, disease of the kidneys is positively indicated to a very decided degree. In albuminuria emaciation is also very noticeable; sympathetic disturbance of the stomach exists in connection with it, and post-mortem examinations often reveal, associated with it, extensive pleuritis and pericarditis.

"There are few diseases that so completely change and impoverish the blood as does chronic 'Bright's disease,' and this alteration of the blood makes itself manifest at last in the most unmistakable manner, especially by the peculiar aspect of the skin, its

waxy pallor, etc. This appears to indicate that 'Bright's disease' is constitutional, showing itself through the kidneys rather than being produced by them. If, then, an individual who presents himself for examination should look a little sallow, especially if waxy, and if somewhat emaciated, with a slight puffiness of the eyelids, acknowledging a frequent desire to urinate without regard to any special cause, although he may never have sought nor had any medical advice, nor considered himself sick, *examine his urine*. If it contains albumen and tube casts, and is of low specific gravity, the person is affected by a malady that may terminate his life suddenly, or may lead to protracted suffering and various complications, and will at last prove fatal.

"Anemia, serofula, the sequelae of malarial exposure, the diseases of the stomach, of the heart, syphilis, venereal excesses, insanity, cancer, fistula, etc., each and all have a physiognomy so distinct, that often a diagnosis can be made almost instantly.

"In making examinations, it is also to be remembered, that not only must the medical examiner ask, is the applicant now sound; but do his ancestral record, his occupation and habits, his hereditary tendencies, make it probable that he will *continue sound* LONG ENOUGH *for him* ~~to~~ *to reach the expectation of life at his age,* ~~and~~ or how much above or below this will he live, viz., WHAT IS HIS PROBABLE LIFE-TIME.

2d Edition.

LONGEVITY.

PART II.

The Practical Relations of

BIOMETRY,

(THE MEASURE OR SPAN OF LIFE.)

A NEW PHILOSOPHY—TO LIFE INSURANCE,

Explaining the Necessity for, and Origin of,

THE NEW METHODS

OF EQUALIZING PREMIUMS AND INSURANCES,

AND OF

THOROUGHLY CLASSING THE INSURED.

APPENDIX,

Containing plain and interesting answers to

What is Insurance? What is Life Insurance? What are the
Best Methods of Insurance?

— BY —

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Vice-President and Ag't-in-Chief,

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Secretary,

OF THE

AMERICAN POPULAR LIFE INSURANCE COMPANY.

NEW YORK:

WM. WOOD & CO., 61 WALKER STREET.

1869.



PREFACE

TO THE SECOND EDITION, PART II.

IN this edition the topics treating particularly upon Insurance have been arranged together as Part II. The subjects of the two parts are necessarily intimately related. Some may at first think that they are not essentially cognate. Insurance is, however, not only a crucial test, but the grandest practical application of the "New Philosophy of Life-time" developed in Part I; of which, therefore, Part II is justly the counterpart.

To prove the doctrines of Part I, was one task; to demonstrate their correctness by practical application, especially to the great financial affairs of life, and thereby give to them completeness of standing and honor, was quite another, to the accomplishment of which the most practical of all subjects, Life Insurance, was the convenient intermediate.

Ten thousand facts might be adduced as tending to sustain the theory of Biometry, yet many persons would continue to demand *practical results*, and unless it was brought down to a dollar-and-cent appreciation, would often ask "Of what use is it?"

Indeed, when the theory of thoroughly classing the assured was first presented by the American Popular Life Insurance Company, many cried out that it was an experiment, that the theory was very attractive and plausible, but could not be practically applied with any advantage.

But by the test of Insurance during three years, this important point of practical application is now settled, and a financial, competitive, not to be disputed value, is now yielded to the teachings of Biometry; which, as an unapplied science, might have been regarded as wholly speculative, and been viewed with doubt, if not with decided unbelief.

II.

The operations of this Company cannot therefore be witnessed with indifference by any person; for if he cares nothing about Insurance, he is deeply interested in all the problems of life that the operations of this Company develop and illustrate, and that can be positively, or at least best demonstrated only by Insurance. Already has this Company conclusively demonstrated by obvious results that the thorough classing of risks or lives according to their discernible probability of living is easily attainable.

From "Underwriters' Weekly Circular;" names omitted :


"INTERESTING STATISTICS, copied from the last published Report of the Massachusetts Insurance Commissioner, showing the ratio of claims by death, to policies insured during the same twelve months in the leading Life Insurance Companies.

Name of Company.	Ratio.	Persons Insured.	Name of Company.	Ratio.	Persons Insured.
American Popular, (Stock,) -			- - - - -	.06 !	1667
* * * * *	.21	476	* * * * *	.28	357
* * * * *	.20	500	* * * * *	.42	238
* * * * *	.32	313	* * * * *	.14	714
* * * * *	.11	909	* * * * *	.32	313
* * * * *	.30	333	* * * * *	.38	263
* * * * *	.30	333	* * * * *	.29	345
* * * * *	.41	244	* * * * *	.09	1111

Total Ratio, .26, or one death in every 385.

"The Company has been in existence three years, during which period it has insured over 4,000 lives, and has sustained only four losses by death from the 'best' class, which numbers nearly 3,000.

"It has several classes of sound lives. First or 'best' class of lives, at the lowest premiums, second at higher premiums, third at still higher, &c., &c. In the three years of its existence the Company's claims, were out of the first-class \$4,991, 36; second class \$7,932, 32; third class \$16,395, 95; each class had paid premiums partly in proportion to the estimated risk.

 "In 1868 the American Popular, as we have already said, suffered no loss of those insured during that year!

"The aggregate rate of mortality is below that of any other company, from the fact that the largest number of the insured belong to the 'best' classes.

"The Company's system of classification, now under trial for three years, has been proved successful beyond even anticipation."

III.

Observe that the above figures include *all the risks* incurred, the unsound when taken, as well as the sound. Therefore a fair comparison would be still more favorable to our Company.

The inferior sound lives are equally well and easily classed, as shown by a loss of ten (10) cases during the same time from the third class, including only about six hundred. If eleven had been lost, the number would have been exactly reached for which the premiums were computed.

The fact, therefore, that correct classing can be availably done, is thus, through Insurance as an intermediate, convincingly demonstrated. But while Insurance is useful to Biometry, as the most ready means for demonstrating its correctness, which is thus made at once reliable for use in many ways, it is perhaps the most valuable practically in the matter of Insurance itself. Hence, Insurance may be properly used, as in Part II, for illustrating *both the correctness and the value* of Biometry.

The effect of classing upon the long-lived is a matter of no small importance, to be valued by thousands of dollars merely; it involves millions. Observe the following table, and the great results to one thousand long-lived persons classed together. As a fact, more than one thousand out of each ten thousand at 25 live to be 75 and 80, viz.: 2372 to be 75, and 1287 to be 80.

Age	General Average Expectation.	General Average Longevity.	Premium.	Assurance at General Average.	Assurance at 75 Average.	Assurance at 80 Average.
25	36.12	61.12	\$18.63	\$1000.00	\$2,993.94	\$4,212.89
30	32.76	62.76	21.48	1000.00	2,636.42	3,821.25
35	29.40	64.40	25.11	1000.00	2,501.16	3,652.43
40	26.06	66.06	29.86	1000.00	2,196.09	3,351.87
45	22.76	67.76	36.08	1000.00	1,918.02	2,897.59
50	19.54	69.54	44.39	1000.00	1,775.97	2,580.44
55	16.45	71.46	55.44	1000.00	1,648.65	2,502.46
60	13.53	73.53	72.82	1000.00	1,142.82	2,021.39

Explanation. The first column shows the ages at which, say, ten thousand persons are insured. The second and third columns show the "expectation" and "longevity" of those ages according to the "general average" tables. The fourth column shows the

gross premiums of those "general average expectations," necessary to give each of the ten thousand persons \$1,000 at his death, and so exactly computed that nothing shall be left, as we will suppose.

Suppose that of the ten thousand, one thousand who will *average* to live until 75 years of age, and the same number who will *average* to live until 80 years of age, be selected according to the principles laid down in Part I, and classed together, paying the same premiums only as before: How much ought they to average to receive? This is found in the fifth and sixth column under the ages 75 and 80, in which the compound interest has been computed only from the "general average longevity." The amounts are surprisingly large, yet correct, and only the natural results of compound interest and few losses.

For example, The one thousand men insured at 25 years of age, who will *average* to reach 80 years of age, should receive over \$4,000 each; if insured and averaged with the other nine thousand, and paying the same premiums, they could receive but \$1,000 each; or the entire one thousand would, if classed, be entitled to receive four millions (\$4,000,000)! when averaged generally they could not expect more than one million (\$1,000,000) in the aggregate. If it is said that by the ordinary methods of insurance, dividends, etc., increasing the assurance are made, then the reply is that the parties who can live long, if classed, would receive so much the more than is above stated. Is it asked, "How is so much money made for the long-lived?" The answer is: There is no more paid by them, nor made for them, than in the other case. Is it asked, "What becomes of so much money when the long-lived are under a 'general average'?" The answer is plain; Their money is absorbed by the naturally short-lived, *unjustly averaged* with those who make up the great deficiencies of the short-lived. Thorough classing therefore gives a fair chance to the long-lived to pay less and have more.

Thus is the science of Biometry the science of equity in Life Insurance, while the easily recognisable tests of practical Life Insurance now established, reflect back upon Biometry a substantiality obtainable and maintainable in no other way so well.

ORIGIN
OF THE
AMERICAN POPULAR LIFE INSURANCE COMPANY,

And why Prize Essays were desired.

THIS Company was organized in the spring of 1866, not for the emolument of individuals, not merely to bring into the field another competitor for business, but to present new plans for doing it; plans not invented for novelty sake, but because evidently needed for the complete and satisfactory working out of the fundamental principles of Life Insurance; *plans not therefore in any sense experiments, but the logical, satisfactory results indicated by the experiments tried by the old companies during many years, but of which from their constitution it is impossible for them to take the full advantage.*

To be sure, within the last few years, Life Insurance had deservedly become very popular, yet complaints were constantly made against its incomprehensibility, its injustice, and its inequity. These were apparently tolerated only because most persons thought them necessary evils attendant upon a great good. Every day, however, their illegitimacy was becoming more apparent, and objections were stronger and more numerous. This Company thought these well grounded, and their causes removable by very plainly understood, common-sense, simple methods, as will presently be seen.

This is not said, nor is anything that follows, as a reproach to any company, person, or class of persons.

Improvement in Life Insurance Needed.

There is no disposition to deny, it is admitted without hesitation, that some of the Companies working upon the old plan were noble and praiseworthy pioneers, working according to the best light that the science of yesterday shed upon their path; yet it is also believed that the science of to-day is in advance of the past; that we should in this age of stirring thought and enterprise live neither in the pluperfect nor in the perfect, but in the present tense; that, guided by all that is valuable in experience, we should seize upon the present and, looking forward into the future, be prepared to keep pace with the constantly advancing civilization of the age.

Within ten years how rapid has been the march of improvement! The sciences and the arts, of peace and of war, almost without exception, seem to have put on their seven-league boots.

Astronomy has discovered new planets. Natural Philosophy has put a girdle round the Earth, and brought its very ends within speaking distance. Chemistry has invented new forces of destruction, of almost volcanic power, and given to medicine a potent soporific under the influence of which the unconscious limb is amputated without a pang.

This wonderful activity has its counterpart in the arts. What is not better than it was ten years ago? Every thing, from a needle to a printing press, boasts of meritorious improvement. The World's Fair and the Paris Exposition testify abundantly not only to what has been done, but also indicate how desirable every improvement is considered. Was a reward offered there for adhering to old methods? Why not? The Chinese, Japanese, and old-plan Insurance Companies are the only people who would be likely to make such offers.

Methods of doing business show equal improvement. They have been entirely revolutionized. Men order by Telegraph and deliver by Express. Enterprise, competition, and improvement have developed plainness, correctness, and brevity in all genuine transactions. Why then should Life Insurance be the only institution at a stand-still for the last fifty years?

To change the hoary order that had been established, to develop Life Insurance, make it progressive and plainly understood, was, apparently, not to be thought of, much less to be labored for; indeed, it would be a heinous sin worthy of condign punishment; since, if every thing was made plain to common people, it would disturb, in fact uproot, very important personal interests. A veteran actuary was asked by his junior: "Why not lay aside all our complications and mystifications, and have every thing plain and simple?" The reply was: "That is the bread and butter question."

INSURANCE SHOULD BE MADE PLAIN.

This Company thought the subject should be made plain to all. No one should insure upon mere faith, blindly believing that he is doing right, but not rationally knowing the why and wherefore, half hoping, half doubting that it will come out right, but not certain how. Of all states of the mind an uncertain one is the most unsatisfactory to an intelligent man.

In short, it was believed that Life Insurance, like every thing of European origin, must be thoroughly Americanized before it could meet with or deserve the entire confidence of the American people.

A newspaper writer says, "The American mind is original, inventive, and peculiarly utilitarian. To the generic American, form is nothing, the essence is every thing; shadow passes for shadow, and substance is held with a vice-like grasp."

He has no veneration for any Delphic Oracle, and is suspicious of any profoundness so deep as to be incomprehensible. He has observed that a stream is usually dark, not because it is deep, but because it is muddy. Unfolding improvements teach him daily that the past did not possess the sum total of human wisdom, that the experience of the future will be vastly greater than that of the past, and that the forecasting discernment of an instinctive, prophetic, inventive mind is often reliable, and sometimes more valuable than any experience.

EQUITY ESSENTIAL TO CORRECT INSURANCE.

But Life Insurance was unsatisfactory, not only because it was apparently mystified, but also because, so far as understood by the people, it appeared to them to be exceedingly unjust and inequitable.

The greatest cause of complaint, and that which produced the most dissatisfaction, and which has direct relation to these essays, was the gross inequity of assigning to all persons at the same age the same premiums, if in health, and elassing them all together no matter how dissimilar the cases.

It did not require an "expert" to perceive this great inequity and inconsistency, for common sense cried out against it as a grievous wrong. Indeed, it required an "expert," and a very blind devotee to "experience," to attempt to find some excuse for it in the plea of necessity.

It was very pertinently asked, Why should a person who inherits the boon of a decided tendency to a long life, divide that rich inheritance with those not so fortunate? Why should a person whose habits are the best, whose intelligent care is always watchful of his health, and whose prudence will prevent the occurrence of many of the accidents of life that happen to others, receive no more for his premiums than one of the same age whose habits, intelligence, and regard for his physical welfare in various respects are, to say the best, not above the average?

It was very forcibly asked if Insurancee does not imply equality of conditions among the insured, and premiums approximating the cost of insuring? And if it was not a fundamental principle of Insurancee that similar risks should, and dissimilar risks should not, pay similar premiums?

This is in some respects admitted by the practice of all the old companies, since they will charge the same person more at an older age; saying that the reason for it is self-evident, viz., it is worth more.

But it is also worth more to insure some, than it is to insure others at the same age. Indeed, the companies observe this distinction in part. For if a person is unhealthy they will not take him, as they say they have but one premium for each age, and to insure him is worth more than the premium of his age.

Are health and age the only reasons why it is worth more or less to insure? By no means. It is evidently of not so much importance how many years a man has lived, as how long he will live. It is not so much the health he now has, as the health that he will have, that should determine the cost of insuring him, and how much, therefore, his premium should be.

If a man at 30 cannot live beyond 50 (he may not live an hour), what will be the effect of making him pay only so many premiums as would be sufficient to insure him if he could live until 62, viz. such that thirty-two of them are needed to equal the amount assured to him, and which his family will receive in twenty years at farthest? There will be a loss on him, since he will fall short, by twelve premiums, of paying what will, with interest, equal his assurance. These must be donated to him by the Company. Who is the Company? To every long-lived person in it, the answer comes home, "Thou art the man."

Such is not, properly speaking, an insurancee, but a combined insurance and donation company, in which the probably long-lived

insure each other, and also make donations to the naturally short-lived. If one who has equal capacity with the rest of living to pay in all that he will take out, is removed by any casualty, the assurance paid to him is not a donation, but a legitimate payment of assurance in the contingency against which it was insured; but if any one has not naturally the capacity to live until his premiums, with interest, will equal his assurance, what he receives above what his premiums with interest would at best equal, is a donation to him.

It will be proper to inquire here, what the effect will be if too large a proportion of the insured are of that class which will pay only 20 premiums, when 32 are needed to cover the money assured to them. Who, then, will make up the 12 deficient premiums of each of the inferior lives? From the empty treasury, echo answers, Who?

Hence it must be apparent to the thinking mind, that, no matter how complete the appearance of present safety, no system of Life Insurance, no company prosecuting that business, can be permanent, able to renew its life from year to year indefinitely, unless based upon correct fundamental principles. In dealing with life, the laws that govern it must be respected. Persons and companies that violate them, particularly in case of life insurance, though making what is thought to be sufficient provision against the consequences, will certainly be brought to grief by Time, the great equationist.

Those who are insured together should be similar not only in age and health, but should approximate similarity as far as possible in all characteristics that materially affect the duration of life, and in all else that will affect the risk, such as different kinds of premiums, etc. If this is not so, it will be worth and will cost more to insure some persons than it will others insured with them. Indeed, they will not be, properly speaking, insured; part will be donors and part donees! which, as has been shown, is contrary to one of the great fundamental insurance principles.

Any person of considerable probable longevity wants to have his practical "expectation" computed by averaging him with others like himself in all those respects that pertain to longevity, not by averaging him with those whose characteristics, natural or acquired, will weaken the "expectation" to which he is entitled.

What has A, who has the very best "family expectation," and every good personal indication, to do with the short "family expectation" of Z? Does A wish to suffer the great disadvantage of having his "expectation" diluted by that of Z? Of course not. Has copper any increased value when amalgamated with gold in a debased coin? It is said that old age is not only warmed, but invigorated and made younger by sleeping with youth, which correspondingly parts with its vitality; also, that the diseased can absorb from the healthy recuperative energy. Doubtless this is untrue; but its parallel is found in the old-style insurance companies, where the short are sandwiched with the long-lived, the latter furnishing the funds and the former absorbing them.

The equity of insuring each case in accordance with its merits is so evident, and is so much in accordance with common sense, that the question is at once asked, Why is not the American system at once adopted by all the Companies; or is it merely specious, and not really what it appears to be? It would seem that there must be some good reason for not adopting what appears so fair and feasible. There is. Companies already started upon the European plan cannot adopt the American system.

Why the Old Companies cannot adopt the New Plan.

Suppose that five men, who on an average can live to pay but 20 premiums each, are insured so that 32 premiums must upon an average be received from each to cover the assurance of all: obviously there will be a loss; but if those are insured with five others of the same age who can live to pay 44 premiums each upon an av-

erage, the ten will average to pay 32 each, and there will be enough for all. The American system would insure each five in a class by themselves, by which the inferior five must pay more, and the superior five need not pay so much, or if they paid as before, would receive much more in the end. Now could a Company represented by the ten, one-half of whose risks had been insured at smaller premiums than they were worth, adopt the American plan, when by so doing the superior half, upon whom the Company depends to make good the deficiency of the inferior half, would at once drop their policies in order to take out the new and more advantageous ones? It is evident that the old companies cannot adopt the American system. How is it possible for them to take advantage of the most important indications presented by their own experiments? Of course they see what should be done. Not a day passes without bringing home to their apprehension the true course to pursue; but they must shut their eyes, for they cannot adopt it and live.

But it may be asked, do they admit its correctness? They cannot do otherwise, if they express their honest convictions. One of their most intelligent men (a president of one of them), said he could readily select one-fifth of those insured in his company that he would guarantee to live on an average fifteen years longer than all together would. *The whole argument is allowed* by this admission of the fact. But, when it is remembered that they cannot adopt the American system, and that there are great personal interests involved, is it to be supposed that those companies will allow their convictions to reach the public? Is it supposable that they would directly or indirectly suggest to their best lives to go elsewhere, when their going would involve in ruin the companies they left? We are not commanded to love our neighbor any better than ourselves. Besides, are not many, if not most men, so constituted that they cannot see the clearest truth distinctly when it is against

their interest? A gold dollar near the eye will eclipse the sun. It may be asked, What, then, do they say?

That is what we wish to bring out and examine.

Some of the most intelligent and conscientious of those interested in the old plan, sagaciously say nothing, being unwilling to deny what they know to be correct, and of course not willing to decry their own interests, trusting to the inertia of the public to run in the old rut as long as *they* will desire to do business.

Pseudo-objections to the American System.

Some will allow that the theory of the American system is good and attractive, but mildly object that they do not see how it can work practically, though every one else whose vision is not affected by his interests can see it clearly.

Others will pleasantly suggest that it is "new," an "experiment" that "may work well after a while, when it has been tried." Perhaps they would like to compel it to work well before it has been tried! It is not an experiment in any sense of the term—nor is it new in the sense that it involves any new hazards. It is the improvement resulting from the long-tried "experiments" of the European plan; in fact, it was intended to and does avoid the hazards of the old plan, producing entire security, as justice always does.

Many interested persons, since no argument can be found against the system, will resort to detraction, ridicule, and every form of misrepresentation. The latter is their chief recourse, and they use it in any way that they think will most abuse the public mind. No enterprise was ever so insidiously attacked, and with such utter disregard of truthfulness and every honorable characteristic. They are too shrewd to do this in such a direct, open manner, that the falsity can be brought home to the disgrace of its responsible authors; they do it anonymously through circulars, or

privately in the ears of those they meet, or by letter, or through irresponsible parties, agents, etc.; paying them to do that which they would be ashamed to be known as doing. This method proves both the dishonesty and the baseless character of their assertions and innuendos. Such a course is a source of both regret and of great satisfaction—regret that any person connected with Life Insurance should be so ignorant, prejudiced, dishonorable, malicious, and that the public should be even temporarily misled—satisfaction, since it conclusively proves to every thoughtful mind that no valid objection can be brought against the American system, even by those most interested to oppose it. It is therefore most worthily named.

A few argue that insurance has nothing to do with equity, being a purely benevolent institution, in which those who from any cause are fortunate to live long, agree to make good the deficiencies of those who unfortunately from any cause die earlier; and that the only object in rejecting any from insurance, is to provide for the security of a company. But it must be evident without argument that an insurance company is not intended to be a "relief association," nor in any way the almoner of any charity whether of health or money. The absurdity of the benevolent idea was exemplified by one Company that had as a motto, "It is the christian duty of every man to insure his life," and a little farther down the page the statement, "This Company insures only sound lives."

Apparent Opposing Argument.

Some of the old Companies admit the inequity of their plans, and say that they endeavor to neutralize the wrong they do by trying to adjust the returns of the excess of premiums taken, or so-called dividends, in such a way as to give the long-lived a partial restoration of their rights. Why then take them away? They attempt to excuse the inequity by saying, it is necessary to make

premiums in accordance with the "inflexible law" of mortality exhibited by the number of the living and dying at each age; that this is the only landmark by which to be guided in making computations in regard to the duration of life in the future; that the "lines of insurance," as the security of a company will permit, should be made as "broad" as those included by the "laws of mortality," so that the contingencies of each shall correspond; that by this means only is a company secure of an "average" of lives that is reliable for safety. They also assert that, as life insurance is the providing against contingencies that does not happen alike to all, any system must work unequally; that some will be gainers and others losers, and that as between different systems, the inequity is therefore only one of degree. But in taking this view they overlook the fact, that equitable insurance does not mean that money does not pass from one person to another; it is the intention that it should, if necessary, but the contingencies in which it shall pass should be reduced to the *minimum*, and equally liable to occur to each of those insured together; if as under the old plan, they are not, the insurance is not equitable, which is to say it is not insurance, but in part, at least, merely donation.

It will be well to test the statement that security arises from the old plan of computing premiums and of including in "broad lines" together all the insured of a company, and to show that, so far from being a source of security to a company, they constitute its greatest danger, and that justice and equity form the only gateway to complete security in this as in every other kind of business.

It is desirable, however, to premise that the American system makes full use of all the "experience" of the past, takes into account the so-called "laws of mortality," "expectations" of all kinds, and uses all the conveniences furnished by "mathematics" for the prosecution of the work. It does not, as has been maliciously or ignorantly asserted, cast aside any thing that is useful,

but *uses all the means of the old plan, and more efficiently because it improves upon them.* It gives all due value to financial and actuarial operations, as being essential to the complete welfare of a company; while it does full justice to the more important pathological and physiological aspects of insurance, and at the same time superadds to them a due regard to the moral equities that should govern all business transactions.

General Mortality Argument Examined.

Let us inquire into the so-called "laws of mortality," "general average," "expectation"* of life, etc., upon which the premiums of the old plan are computed, and then learn if by the old companies people are insured upon these or by some other guide.

The "rate of mortality," viz.: the number of living and dying at each age, and the "average" or "expectation" of life, are learned by taking a census of the ages at which the people of different localities have died within many years. By adding the number of years that all of them have lived beyond any given age, and by dividing this sum by the number of persons who have lived beyond the age, its "expectation," or the average duration of life beyond the special or given age will be shown. At or from 25, it is little more than thirty-six years. Of course one of those persons may not live a year, and another may live seventy years more, but the average will be about thirty-six, as has been proved by a

* It may be objected, as it has been by those who either wish to carp or to appear very wise, that premiums are not computed merely upon the "expectations" of life. Very true, and it might be presumed that any ordinary scholar in Insurance would be familiar with its A, B, C. It is supposed that it will be understood by those who wish to understand rightly, that the object here is not to teach how to do the technical work of Insurance, but to explain its principles; and for the illustration of these it may be assumed that premiums are computed upon "expectations," since the method is simple, easily followed, and the difference in the result is nominal.

great number of averages made. These averages of each age being placed in order, an "age expectation" table is formed.

Great mistrust of these "mortality" and "expectation" tables is felt by many persons. The question is frequently asked: Are they reliable? Are they not, to a certain extent, conjectural and "made up?" Can it be possible that the facts of one population can be correct data for practical purposes in another? And though the "averages" of these tables are called "laws,"* it does not appear how or why they are so. People notice that they are referred to with the greatest deference, and calculations based upon

* They are often called laws, but they are not, nor do they happen, as is sometimes said; nothing in nature happens. They are merely certain results of the laws of life, nothing more.

To call a "rate of mortality" or a "general expectation" a law, especially a "mathematical law," as is sometimes done merely because it is exceedingly uniform, is both to misapply the word law, and to misapprehend the true functions of mathematics; to make it a basis for actuarial formulas applicable to real life insurance, is to altogether overlook the practical facts, and to bring discredit upon mathematics, as apparently producing a failure. Mathematics alone are not competent to deal with the complex phenomena of real life, and when they assume to do so, or are compelled to attempt to do it, they always, as in this case, become responsible for grave errors and great inequities.

Hence the serious faults that have been committed in Life Insurance.

Mere mathematicians have assumed to organize the plans and formulas by which the whole business has been done. As well might they take the entire charge and control of the whole science of Medicine, and lay down directions and formulas by which a doctor should prescribe for his patients in accordance with some rule of general average, when both the kind and quantity of the medicine and the character of the treatment must be adapted to each constitution by experienced skill and the exercise of a sound judgment enlightened by scientific knowledge.

No contempt is intended to be expressed for the tables, nor for mathematics, nor for any actuarial work, whether theoretical or bookkeeping in character; they are most admirable, important, and essential instruments, but they are but instruments; they cannot give laws, nor teach the application of them to *living* life. All the respect that can be appropriately demanded should be felt for the arduous collaborators who sincerely devote their abilities to the development of life insurance; but neither department, and certainly not that one which is chiefly mechanical, should assume to consider itself as alone sufficient for directing the entire business.

them are carried to many decimal places, as if the tables were exquisitely exact. But the public are no longer inclined to worship a veiled Mokanna. Well may the mysterious be regarded with suspicion, for in craft there is often craftiness.

The truth is, the tables are not exactly correct, nor is it of any consequence that they should be. A knowledge of this fact may strip from them a blind devotion, but if it does it will not diminish but increase their great utility, by giving to them a common sense, practical, very valuable application, and causing them to be esteemed for a superior worth that they do have, instead of being venerated for an inferior value that they do not possess.

They are the results of many minor compromises and reconcilings of discrepant testimonies, in order to exhibit a general uniform result. They are never used, nor could they be with safety, as a perfect measure in insuring. No company takes them as a rule for insuring lives. The companies assume the "Table Expectations" to be correct when they compute what are called net premiums, which mean the premiums necessary to cover probable losses by death. But it should be noticed that a lower rate of interest is used in the computation than that which it is expected will be realized; to the net premium a larger addition is made than it is supposed will be needed to cover all expenses besides losses. Thus it is observable, that for two reasons premiums are larger than the indications of the table would require, so that premiums based upon the "mortality" or "expectation" tables cannot be considered as measure of the money that is to be paid by the insured.

Old-Plan Practice does not conform to Theory.

The old companies not only do not conform, nor intend to conform to the "mortality" tables when they compute their gross premiums, but they also intentionally deviate from them when they "pass" or accept applicants; they cannot do otherwise with safety.

The old plan, though so grossly inequitable, would, if the tables

were exact, or if an allowance were made for error, very completely guarantee the security of a company if the whole community were compelled to insure; but only individuals insure; and the inequity of the old plan induces many who feel that they are probably long-lived to take advantage of their privilege and decline to insure.

To diminish the effect of this inequity, that naturally produces a defection of the long lives, the plan is to discard unhealthy lives, women, and those who appear likely to have inherited certain diseases. The hope is thereby to discard as many short lives as will balance the long lives who are too discreet to insure under such disproportionate terms as are offered by the old plan.

Thus one injustice begets the necessity for another. An effort is made to neutralize an inequity that should never have been permitted, by committing another; and, while it is said that it is the "christian duty of every man to insure," all unhealthy persons are rejected, no matter how willing they are to pay the true cost of their assurance. By the plan of the old companies they must do so. They must say one thing and do another. To beguile the probably long-lived, they must argue the benevolence of the institution while they are compelled to discard those who most need charity.

A writer in the *Atlantic Almanac* states the case very tersely and to the point, representing himself as a Clerk in an Insurance Company conversing with a customer, as follows:

"I explained to him that nothing was so certain as the average law of death. We had the tables—so we knew, on an average, just how long people would live; and we fixed our risk accordingly, so as to meet the average. He asked me why he was to go to a medical examiner. I told him that it was because we only wanted to insure healthy lives. He then asked me whether only healthy lives came into the tables of mortality—whether only healthy people lived in Carlisle and Northampton and the rest, and why we did

not do our business on our own principles, and take healthy people and sick people together. I told him that if the company did not make any profit, we could not keep up the office. He then asked me why we did not say so in the prospectus, and what was the use of making so much talk about the certainty of the average of mortality, when we had nothing to do with the average of mortality, but only with some of the best lives in the community. I told him that was our business and not his."

So it appears that the old companies neither make their premiums nor insure people according to the "mortality" table, but vary from its indications both in regard to the premiums made and to the persons insured; for doing which the table indicates no rule; it is *wholly done by merely the personal examination of each case*, and that far from thorough.

Instead, therefore, of adhering to the tables for which they profess such respect, it appears that in them they have no real measure, that they merely make a hasty personal inspection of an applicant, and, so to speak, jump at a premium set down against his age and made so large that it will be sure to cover almost any kind of an average and leave a large surplus. The "lines" can be pretty "broad," any one would think, with such a measure of cloth for a garment. If the like was sent to tailors, many persons would expect that some of the least honest might "cabbage" a portion, even if told to return all the pieces. If a tailor should send back a large piece, although he should call it "dividends," would not the question be at once put: Why did you require so large a measure? and might not some person with a peculiar tone inquire if he called the return "dividend" because he had "divided" the surplus between himself and them?

(*Moral.*—Beware of large "dividends." You cannot have more than you pay; *you may have less!* No tailor sends home more cloth than is sent to him.)

It will now be understood why the premiums of different companies, and of the same companies at different times may differ without impropriety. The judgments of different persons as to the basis and the methods for computing premiums will differ. But when all the conditions of the policies are taken into consideration it will be found that the differences of premiums are not considerable where thorough classing is not done—showing that the general principle upon which premiums are made is uniform, but that there is no exact rule essential to be followed.

The fact that no two companies have exactly the same premiums should illustrate the absurdity of thinking, as some insurance men appear to think, that the tables of their companies are almost to be venerated, and that they must not deviate from their tables on any account. The same fact also shows the absurdity of extended decimal calculations in computing premiums or reserves, as if the greatest accuracy was attainable or necessary. This is done either for pretense, or through ignorance—probably the latter, for nothing is more absurd than learned ignorance. It does, to be sure, appear rather singular that different companies having the same actuary, either constant or advisory, should have different tables; but they do, which at least shows that there is no uniform essential rule.

The "Experience," or Sheet-anchor Argument of the Old Plan examined.

But, again, the plea of necessity and the security of the Company are set up. It is said that their "experience" shows that if the unhealthy are discarded, the proper proportional length of life, or that which will be in accordance with the "general expectation," will be maintained or exceeded, and that thus the *security* of the Company will be insured.

What is here proved? Let us see. It is not denied that if lives are selected with sufficient care, and a sufficient premium charged,

the security of a company will be complete. It is not denied that some companies are sufficiently careful in selecting their lives to have their losses by death fall below those allowed by the general mortality tables. That is not the question. It is, first, whether this security is the necessary result of a plan that in the hands of an expert must always easily work in the same manner, or whether the result is owing entirely to the scientific, skillful observation, sound judgment, and sterling fidelity of *individuals*, whose practice is not in accordance with their theory, but much better; who, as said before, make a personal examination of their applicants and try to assign to them such large premiums as will be sure to more than cover the average cost of all whom they insure, yet are never certain that they are right; second, if this method does insure security, is it the only one that will, or is there another that will attain equal or greater security and also perfect equity?

Let us examine the facts and inferences.

The appeal to the results of "experience" proves that the old companies think that their *other arguments are not conclusive*, but that assurance of security is only to be found in their "experience." This anxiety about security (expressed on various occasions, see debates of the "Chamber of Life Assurance"), this delight in and triumphal reference to their "experience," which in fact *shows only a small margin* of fewer losses than the general mortality tables, proves that the advocates of the old plan do not have faith in their own theories and principles, as necessarily working out correct results, but need to have their confidence strengthened by the testimony of empirical "experience" before they can rest satisfied.

A recent writer in the interest of the old companies says: "The rate of mortality is ascertainable with tolerable accuracy; so with interest, expenses, and the other matters on account of which the premium must be loaded; but for safety's sake, *a margin is taken beyond the estimates* for these, and the business so calculated is

almost sure to result in a surplus." Observe what is here quite unintentionally, but on that account none the less strikingly allowed; indeed this extract is the more forcible because written for a purpose very different from the application here to be made. It asserts, 1st. That the mortality tables are not exact, not reliable to a fraction; 2d. That for safety an ample "margin" is added to the "estimates," showing that *the basis of the estimates is not considered reliable*; 3d. That, after all, the business is only "*almost* sure to result in a surplus"! though it would seem that if a large "margin" is added to the estimates, there ought to be a *sure* surplus if there is any dependence to be placed upon the basis of the estimates. If with a "margin" taken there cannot be a certainty of a surplus, had not that basis better be rejected as worse than useless?

Have we then exaggerated in asserting that there is an entire want of science and reliability in the old plan? Would any good merchant be willing to do business in this manner? viz., upon principles, in the truthfulness, application, and results of which he could not fully confide?

"Experience" of the Old and the New Systems compared.

The old Companies, then, yield every thing to their "experience," and base all their hopes and reliance upon it. But this "experience," as far as it goes, is a complete refutation of the principle or theory upon which they profess to work, while it strongly sustains the American system. If their theory were correct, every one would think that the discarding of such lives as they reject ought to give them a very large margin of fewer losses than the general mortality tables exhibit. But in fact it only gives a small margin of gain on the younger lives, while in the older lives they make more losses than is allowed by the general mortality tables. (See N. Y. and Mass. reports; also compare the old plan "Experience" with the Farr, Carlisle, and other tables.) This shows that while dis-

earding persons, as the old plan proposes to do, will diminish losses in the early years, it will not reduce losses in the older; and it also proves that the inequitable plan of insuring all sound persons of the same age at the same premium, repels most of those who can live through the older up into the higher ages, and who, if insured, would of course reduce the percentage of losses in the older ages. This result of the "experience" is exactly what the supporters of the American system argue ought to be produced by the old plan; for present health is not usually the chief measure of the length of lives. This measure is to be sought *first* in the *family longevity*, and *second* in *personal indications*, one of the most striking of which is the instinctive impressions of the individual, and "experience" proves that these impressions (or something else; what else can it be?) prevent the larger proportion of the long-lived from insuring, and on the other hand induce the short-lived to shrewdly embrace the tempting opportunity of insuring at the expense of others. Conversely, the American system presents the strongest inducements to the long-lived, and, as would be expected, its "experience" shows that it obtains a correspondingly large proportion of them. The old plan depends for its security upon obtaining a relative proportion of them, but cannot offer them strong inducement; yet it really needs them, that it may sacrifice them to the short-lived insured at the same premiums. To maintain a proper proportion, its only recourse and endeavor therefore is to reject a sufficient number of the shortest lived. Of these it is in constant fear, and justly, since they are tempted, by all the attractions of a sure speculation, to insure if possible. On the other hand the American system has no such anxiety, since the premiums of its short-lived by themselves are certain to be adequate. Its "experience" also shows that the proportion that it has of such is small; this is of no consequence, only as showing that while attempting to reject the short-lived does not obtain the desired result, the offering to accept them at appropriate premiums does reduce their propor-

tion. This is natural enough, since many of them can insure on the old plan at as low premiums as the best. The difference is briefly this: the American system strongly solicits the long-lived, but does not hold out speculative inducements to the short-lived; while the European system attracts the short and repels the long-lived. The old plan seeks its object, a proper proportion of long lives, in an indirect and covert manner trying not to acknowledge their great worth lest they should be wary; while the new system works straight to its object; and fully allowing the advantage of being long-lived appeals directly to the interests of such. The natural results follow; each system obtains a larger proportion of that class to which it makes the larger proportional inducements. The "experience" of the American system already shows that it has fewer losses, even taking all its classes together, than the old plan; while it will show fewer losses in the older ages than the general mortality tables, and many fewer than the old plan.

It may be said that it has been worked so short a time that its "experience" is of no value. But we will submit one fact that will show that it is already of much more practical value than that of the old plan. The 4th, or ordinary; 3d, or good; 2d, or better, and 1st, or best class of the insured in the American Popular, include only sound lives, or those supposed to be so when insured, and which would gladly be taken by any company. Now, in the 1st there are four times as many persons insured as there are in the 3d; yet there have been three times as many losses in the 3d as there have been in the 1st class. That is to say, a person insured in the 1st class has had to share the loss to the amount represented by one, while if the 3d class only had been put with the 1st, the latter would have assisted in paying four times as many losses. Is not that "experience" of some value to the long-lived?

But there is an additional old plan "experience" very interesting, that in an equally striking manner sustains the American sys-

tem—viz.: the old plan “experience” in annuities. In making these they obtain too large a proportion of long-lived! and make fewer losses in the older ages than equal those of the general mortality tables! How is this accounted for? Does it not appear that the instincts of those who desire annuities are a better guide to them than the tables and methods of the old plan are to the companies? They are thus led to give the same annuities to all persons of the same age, and without any examination. This would do very well if they could get an “average” of long and short lives; but they cannot, as their experience testifies. Those who are short-lived know too much to be entrapped; while those who consider that they are probably long-lived, and know that all their “folks” lived to be very old, will see in the offers of the old plan “average” premiums an almost sure speculation, and shrewdly take out annuity policies. Thus the old plan “experience” testifies that it is just the reverse in annuity from what it is in life policies. In those the old companies tend to get too many long, in these too many short lived persons. (By short and long lived is technically meant those who do not, and those who do, live out their “expectation” from any given time. A person of 25, when insured, would be called long-lived if he lived above 61 or 62; while a person of 70 when insured would be technically short-lived if he did not live 9 years more.) Most of the old-plan companies have therefore stopped making annuities, their “experience” testifying that they are losing and will lose *millions of dollars* by those they have already insured. Out of whom do these millions come? The long-lived, who by this gregarious old plan carry all the burdens. Some of the companies say they stopped because they had so much other more profitable business. Doubtless almost any business would be more profitable than one in which there was sure to be a loss on nine-tenths. Are not these facts more interesting illustrations of the working of the instinctive feelings of men, and do not these facts demonstrate the utter falsity of the old plan, and the

egregious error of *trusting entirely to mathematics where life is concerned?* What is more absurd than to give to a hale man of 70, whose personal indications have not been examined, nor his family history obtained (which would show an average ancestral record above 90) an annuity policy based on the average expectation of his age, which is only 9 years? Would it not be equally ridiculous, though not so unfavorable to a company, to give an annuity to a man of 40 as if he would live 26 years, when none of his ancestors have lived to 60, his personal indications already showing an *arcus* or perhaps an *annus senilis* in his iris, and there is not the slightest chance of his living 15 years? But there is no danger of such a person applying to the old companies for an annuity; he will feel that a "Life Policy" is the best for him! Under the American system, there is no opportunity for any such inconsistencies. A person should be examined for an annuity in the same manner as if he wished to take out a life-policy, and the ratio of what he pays and receives should be determined by his probability of living. For example, a hearty gentleman of 72 desired to know of the American Popular what a deferred annuity, to commence at 75, would cost him. He was thoroughly examined; all his ancestors and relatives who had survived 20 were either yet living or had died above 90, several above 100. His personal indications favored his living as long as their average, which was 95, or 20 years beyond when he wished his annuity to begin. Now by the table, 20 years is the "expectation" of the age 50. Why then should he have an annuity greater than that of the table rates of 50 years of age? The company decided accordingly. He manifested disappointment and some indignation, saying that he could do better elsewhere. He was pleasantly told that he could do as he chose, but that the American system was not intended to allow capitalists, like himself, to make a speculation out of the co-insured, but was designed and devised to establish equity among those who sought insurance for legitimate purposes. He went to one of the old-plan companies and

deposited \$10,000 for an annuity to commence in three years at the table rates of 75. There is not one chance in one hundred that he will not, ere he dies, draw out twice that ten thousand dollars, and all the interest that they will earn. Who will furnish the other ten thousand?—of course, the long-lived, insured by life policies, who, as in every gregarious old-plan company, make up all deficiencies of short-lived policies, long-lived annuities, etc.

The “experience” of the American System, as above illustrated, shows that, as it does not present inducements for speculation, neither to the short-lived by life policies nor to the long-lived by annuities, it does not obtain them, and only grants annuities on such terms that they do not average a loss to the Company nor offer a speculation to the assured, but are equitable to both. Which plan is right?

There is yet another kind of old-plan “experience” that testifies in the same direction.

Last February (1868) most of the old plan “Cash” Companies raised their premiums on Endowments (so-called), properly called combined Endowment and Term life. For example, the premium of a person of 30 for a policy “payable in ten years if living, or at death if before,” was raised from \$94 to \$103 per year per \$1,000 assurance. Why? *Is it probable that they would, in the face of present competition, have done this, unless their “experience” had proved to them that it was necessary?* Observe another fact. *The American Popular*, working the American system, had, at its start, nearly two years before, made the premium on similar policies \$100 per year. Would it have done this if a lower premium could be afforded?

The truth is, such policies could not be afforded at premiums calculated on the old plan, and its “experience” has evidently shown the fallacy, in this case, of relying too much on mathematics and not sufficiently on the laws of life in matters associated with life. Those Companies that have reformed have lost and will lose many millions on combined “Endowment” and “Term” Life

policies that they have already put out at less than they were worth; which millions must of course come from the long-lived who have taken whole Life policies, yet by the old plan are gregariously insured with the recipients of these Endowments. Those cash Companies that have not raised their premiums may make a showing of business done, but they must surely come to grief if they do not reform and read "experience" correctly, or calculate from all the data *indicated by the Laws of Life*, the true premium needed for short period Endowments. So will all the half-note companies find themselves in trouble unless, as in fact they must do, they pay a decided proportion of their endowment assurances in notes; in which case, of course, those assured will, when it is too late, regret having placed confidence in the miscalculations of the old plan.

Does not this raising of premiums of Endowments to the standard of the American system show that it is right, and that the basis upon which it rests has a reliability that may be envied by the old plan? What stronger proof could be adduced in favor of confidence in the methods of system? But its "*experience*" also proves them to be correct.

It may be said that the American system is based upon the "experience" of the old plan, since that "experience" has, as we have seen, demonstrated numerous serious errors which that plan cannot shake off, but which do not inhere in the American system, for it has been constituted to avoid those errors. Though it might have been constructed upon such a basis of "experience" with the same result as it now shows, since truths never conflict, it was in fact, as will be seen, based upon equity; while its substantiality is doubly sustained by the old-plan "experience" and trebly confirmed by its own, for if that is short, it has been effective, as was shown.* In the entire nearly three years of the Company's his-

* In the start, some said, "Your plan looks well, but it will take time to test it." From the nature of the case, our system did not require the length

tory, it has lost by death but four persons from its first or "best" class, although that now numbers more than twenty-four hundred—while during the same time ten have been lost by death from the third class—though it includes not more than five to six hundred persons. Such results show that we can class sound lives correctly, both the best and the ordinary. Remember that our first four classes are sound lives, and such as would be received by any company. But there is a great difference in their probabilities of living. From our best class we have lost but one case in seven months past, and that class has averaged more than two thousand persons during all that period. Where is there a like experience?

What is indicated by the old plan "Experience."

Upon examination, the "experience" of the European system does not therefore seem to induce confidence; on the other hand, it produces anxiety on account of the narrow verge on which it appears that the best companies stand: a few more of the inferior, or a few less of the superior lives in proportion, and what then?

This clearly shows the great misfortune of the old plan; it forever prohibits any fundamental improvements, whether indicated even by its own experiments or otherwise suggested; once adopted it must be continued: for "experience" shows that an equilibrium of the lives insured is at best so nearly realized, that the life of an old-plan company absolutely depends upon its retaining at least as large a proportion of superior lives as it now has, in order to balance the inferior ones of which it knows not how to be relieved. Still

of time to demonstrate by its "experience" its correctness, that the old plan did to demonstrate by its "experience" that it was wrong. If as much had been required, it would have stood superior, since the old-plan, by its own consent, is wrong, and does not "look well."

Another way in which a brief "experience" will prove convincing, is to notice the number of cases that are rated up by this Company, but are insured at their actual ages in some of the old-plan Companies, and then observe the very large comparative number of losses that occur among those lives.

worse, under the old plan not only must all the most valuable improvements be ignored, but *they must be most strenuously opposed*; for whatever would induce even a slight disturbance of the equipoise between the inferior and the superior lives, and would promote equity generally, would produce such results as could not be regarded with favor by those interested, but would provoke the most decided hostility that human nature can exhibit when its self-interests are threatened with entire subversion.

“Woe to the man who plucks the beard of hoary error.”

No one, then, would ask any person connected with the old plan his opinion of any such improvement, expecting an approving answer; yet there are those who have the nobleness of character not to deny their opinions, and without hesitation applaud all genuine improvements.

We deeply regret that the weakness, the “hoary error” of the old plan is inherent and fatal, for it was a noble pioneer in the best of causes; yet as it is necessarily incompatible with the most important improvements in insurance we must gladly allow it to pass away, that it may be replaced by a better; one that will bear the test of all time. Not because the new is now perfect, though it appears to be so, but because it has no fears of any progressive ideas that may be developed, having the capacity without detriment to itself to seek and adopt any improvements.

It is also to be considered, that hitherto the old plan has been able to secure a large number of the best kind of lives, that will now not be obliged to take “Hobson’s choice,” but can by the new plan be insured much more advantageously. Will not this affect the future “experience” of the old companies? They fear that it will, and their instinctive fears are well founded.

True Value of “Experience.”

In the next place it is to be distinctly asserted, that “experience” cannot as yet be esteemed as of much value. Few

persons have hitherto been insured; the insurance on but few of these has been continuous; indeed, there are many reasons for not regarding this so much boasted "experience" as having any reliable value. This is a matter of indifference to the American system; for its correctness lies in its principles, and its experience is precisely what would be expected; but with this "experience" prop entirely gone, what is left to support the old plan?

Past "Experience" no Criterion for the Future.

But if all that is claimed for "experience" is allowed, and that "experience" was correct in the past, and will continue to be a good indication for some companies, will it be a necessary guide by which to judge of others? The "experience" of the past may not be again realized. The great competition of the present day often too strongly tempts poor human nature. It is generally understood, that many persons rejected in one company can "get in" to another; and that most companies will take cases they rejected a few years ago. Everybody knows that from some cause companies do insure many who should not be insured at the premiums of their actual age. Why not get rid of the temptation? It certainly endangers the safety of a Company. Inequity, as in every thing else, works badly here. It always in the end thwarts itself. Adopted for security, it is the only great and necessary source of danger to a life insurance company. *Rejecting those who are to-day sick does not discard those who will become so to-morrow. Those who will live a few or even many years more, if not long enough to pay as much by premiums with their interest as they will take out, will cause a loss at last, AND TOO LARGE A PROPORTION OF SUCH WILL RUIN A COMPANY. That is the danger of the old plan. It has no measure by which to determine its proportion of long and short lives, which is precisely what is needed AND WHAT THE AMERICAN SYSTEM HAS.*

That there is danger, that many of the old plan companies feel

that there is, and that their methods have more of hope than of steadfast reliance, finds confirmation in the debates of the "Chamber of Life Insurance" in which the great importance of establishing a strict surveillance of all the old companies, in order to insure their security, is abundantly and most earnestly argued. An intelligent writer referring to the importance of the Chamber, says, "Of the main objects in view, the accumulation of vital statistics and the establishment of a national basis of valuation, too much commendation cannot be written. * * Could they be obtained they would speak with a voice of authority that would be irresistible, enabling officials to enunciate ascertained facts *rather than rest upon estimates, as now.*" The president of one of these companies remarked lately, that he could not sleep soundly half the time, he was so worried by the large proportion of losses that his company was making. One of the oldest of the old companies recently sent a private circular to its agents prohibiting them "under penalty of being discharged, from promising any more dividends, as it was not certain that another could be made;" also directing them to promise applicants no more "that their notes would not be used in paying their assurances, as they must be so used." Of course they must be, when a company has been selling endowments for two-thirds the cash necessary to pay the assurance. The long-lived are not such solid lumps of gold that they can pay every demand.

The present state of affairs is not, therefore, satisfactory to the old companies themselves. Could the American system be adopted by the old companies it would free them from all embarrassments in regard to security. It alone can furnish facts and experience that will have any "voice of authority," for that voice is the voice of the Laws of Life.

Inequity "experience" unreliable in Competition with Equity.

If the old plan without competition were safe, it is altogether too inequitable to be endured, and it would destroy a company whenever *equity* is offered by the side of it.

A person might, with safety, sell goods, and credit everybody, if his prices were so high that those who were honest and able, would cover all the losses made upon those who could not or would not pay. He would do still better if he selected his customers, and charged them prices high enough to cover the losses that would be made if he sold to everybody. But what would be the case if his cash customers should leave him, as they certainly would when they were offered true cash prices elsewhere? Nor would they be inclined to remain by a promise of "dividends" of "profits," after deducting his losses by credits, especially if there was a commission taken out of all business done.

Of course in insurance, as in trading upon credit in the manner above mentioned, it will be easier to have a uniform rule, requiring little thought in its application, after the fashion in which all kinds of business used to be done. But, in these days of applied thought, competition, and enterprise, when active thinking is a pleasure to most, no such *troubleless* rules will satisfy the public. It expects its business will be done correctly, and with all the diligent application necessary to produce correct results economically; if not, as has been shown by "experience," a majority of the best lives will not insure.

Why then continue a plan at once unphilosophical, unscientific, inequitable, unreliable, and, of course, unsatisfactory to the public; while it also endangers the security of any company?

Is there any better plan? Certainly there is. It has already been indicated.

Not "Experience," but EQUITY the only Pathway to Security.

Before the better plan is explained, let us observe that the fundamental idea of the old gregarious plan is wrong. It tries to produce security to a company without regard to justice to the assured.

If all were compelled to insure, the European plan would gladly insure all of the same age at the same premiums. A company would thus be secure; but what shall be said of the justice of the plan? It is not Insurance. Insurance provides for that which cannot be foreseen; and means equality of risks for the same premiums. If the law should compel all to insure, ought not in justice different premiums to be made to those who, it can be foreseen, *cannot* live twenty years, and to those who *may* live forty years? Decidedly, yes.

By the theory and the practice of the old plan, *it is the intention to take just as many of those who cannot live long enough to pay their assurance, as there can be obtained of the long lived to make up the deficiency.* Nor is it the intention to charge the former such a premium that if he lives out his full natural lifetime, he will cover his own assurance, but he and a naturally longer-lived person are expected to pay such premiums as, combined, will equal the assurance of both. It is very easy to see what this means; it is this, the long-lived agree to make a donation to the short-lived; if it were paid down when they insured it would be better understood, but no more unfair; and if discounted would be cheaper for the company, as *commissions might be saved.*

Now the American system proposes to charge each person such a premium that, if he lives out his natural lifetime, he will more than cover his assurance, and only in case of casualties, contingencies that cannot be foreseen, will he have his assurance made up by others. This, and this only, is a correct insurance plan.

The advantage of this plan to the long-lived is very, very great. It will more than double * the amount of money that, upon an aver-

* That this is not an exaggeration is shown in a recent circular of one company, that demonstrates the fact that postponing returns will greatly increase them to the long-lived.

age, they can receive by the old plan, if they pay the same premium in one case as in the other. Let them stop and think of this for a moment. For every thousand dollars (\$1,000) "dividends" included, that they would receive by the old plan, *they will average to receive more than two thousand (\$2,000) by the new plan !!!* This is no small matter. The fact is, by the old plan, *there are too many short lives speculating in the very worst manner out of the long-lived.* They are mostly not the poor, but the rich short-lived, who, impressed with the instinctive idea that they cannot live to be old, pay their premiums for the purpose of making a larger per cent. than they can by investing their money in any other way. It is suspected that this is often used as an argument by agents, and winked at by officers, while it is certainly encouraged by the plan of all of the old Companies. It is not, therefore, the strong sustaining the weak, as is sometimes said, but the strong preying upon the weak, the rich seeking to take advantage of the poor—at least in too many instances.

Security of the American System certain.

The records of the past, of the world at large as well as of Insurance, indicate that perfect security in any case is to be had only through justice.

This Company was founded upon this principle, and if *all persons were compelled* to insure, it would not modify its plans. They are founded in right—they will work out both justice and security.

All persons may be insured, none need be rejected. Insurance by this plan is neither a mode of benevolence nor a speculation; neither a delusion nor a deception; nor does it tend to induce deceit in officers, agents, or the insured: it is an equitable business bargain, wise, prudent, economizing and satisfying—it is simply insurance.

WORKING OF THE AMERICAN SYSTEM.

We will now proceed to the brief yet full elucidation of the principles, plans and methods of the American system; the superiority of which will be easily recognized, if it has not been already. Its proper use of the general mortality, expectation, and premium tables relieves them from the discredit reflected upon them by the old plan, and develops very interesting, striking and grand results. Exactness is found not to be an essential nor even a desirable element in them; yet with appropriate modifications they lead, not to an "almost," but to a sure "surplus"—a certain security combined with or rather dependent upon complete equity. It is again found that *truths always harmonize, and that where one is developed no other will ever contradict it.*

First Practical Use of "General average" Tables.

The greatest practical use of the "general mortality" tables is to show upon a grand scale that the "Laws of Life" acting through Family Inheritance are practically reliable for successive periods. The average of family lifetimes is the proximate element of the "table averages," viz., the "general average" of life from birth, or from any special age; for example, if a neighborhood is composed of long-lived families, the average of the entire neighborhood will be high; if the families are short-lived the neighborhood average will be low; if the neighborhood is composed of both kinds of families, the average of the lives of the whole neighborhood will be higher or lower, according to the proportion of each. In any population the same truth will be found, viz., as before said, the average of the lives of the whole community will depend upon the average length of the lives of the families composing it.

If, then, as is a fact, the general average length of life is so uniform for short successive periods that it may be considered reli-

able, the average of the length of life of families also not only may, but must be reliably uniform for short successive periods.

But the family average is evidently produced by the lifetime of the several members of which it is composed. This brings us directly to the law governing the whole matter; one of the most interesting of the "Laws of Life," viz: To every living thing there is a lifetime, whether longer or shorter is dependent on Inheritance: whether it lives through that lifetime is dependent on care of health, and casualties, viz., accidental diseases and injuries. A ray of light now begins to illuminate the darkness, and all can walk with satisfaction. Every one can perceive and feel that there is a relation between his own lifetime and that of his family, and though there are exceptions to the rule, the "average" lifetime of a large number of similar families, may be taken as a fair "expectation" of the members, and, when corrected by their personal indications, it is entirely reliable.

It is nothing singular then, to one who understands the Laws of Life that the averages of the "mortality" and the "expectation" tables should be in a general way correct. They must be. They are not laws, only the results of laws. As these results are uniform, or nearly so, for at least short successive periods, one great point is gained. The average mortality for successive periods being nearly uniform, the tables thus show that the causes of these averages, viz., the *Laws of Life acting through family inheritance, operate at least through one or two generations with great uniformity, sufficient, at least, for all the practical purposes of Life Insurance.*

This point being thus satisfactorily established, the mind feels a great relief in turning from the "tables," the result of general average, to the results of family averages; the former being constructed upon persons not under consideration, the latter being directly related to the cases in hand. With a few exceptions of successful duplicity, though proportionately fewer than in other business,

and of cases in which the family history cannot be learned, the ease and certainty with which all the family data can be had is very satisfactory; especially when compared with the uncertainty attendant upon the application of the "tables" of general average, which uncertainty is so great that they must be, and are, as has been shown, entirely cast aside by all the Companies when insuring—leaving them no reliance, and only a hope that *by virtue of the lives they reject*, the loading added to the premiums, and the high rates of compound interest obtained, all will come out well.

On the other hand, the easily obtained and reliable family data, scientifically collated with the personal indications of an individual, will enable a not very skilful judge to readily and correctly prognosticate the probable lifetime that has been inherited; so well at least that in case of many similar persons, the average will show that the judgment was reliable for all practical purposes.

It may be asked, Why not collate the Personal Indications directly with the "table" general averages? It could be done, but not as well; for as the Family Inheritance is one of the elements to be considered, and a very long step towards the object, it is best to begin with that. Every one also will allow it to be a valid basis, while most persons will be suspicious about the value of the general averages of the table.

It is also to be noticed that if the attention is called in the outset to the family inheritance, the personal indication of diseases or other peculiarities will be likely to attract attention quicker than if the table averages are the data. The family averages and their elements are almost sure to indicate the tendencies to disease when they exist.

Second Practical Use of the Tables.

The second use of the tables is to indicate the appropriate premiums of applicants in accordance with their determined "ex-

pectations." It appears that they should pay not in accordance with the number of years they have lived, but according to the years that they probably *can* live. Now the premiums of the tables are placed against the ages, not because a person has lived a certain time, but because, from the computations of premiums made upon the mortality tables, it is assumed that there is a certain "expectation" associated with each age, and therefore the premium of each age corresponds with that "expectation," though not practically computed upon it alone. Now, since the American system does not recognize that "expectation" as necessarily belonging to that age, we should seek for a premium corresponding to the determined "expectation" of the applicant. For example, if of three persons, 25 years of age, it is determined that the first has an "expectation" of 36, the second of 10, and the third of 40 years it would be proper to allot three different premiums; one would be found against the age having 36 years "expectation"—one against the age having 10 years "expectation," and the third against the age having 40 years "expectation." The "expectation" table will show that these three ages are 25, 19, and 66, since 25 has 36 and 19 has 40 and 66 has 10 years "expectation."

It might be objected by some who have given the subject only a mathematical and not a comprehensive vital examination, that as the premiums are not calculated with reference to merely a certain number of years, but with regard to a certain number of years from a given age and with reference to the table mortality of that and the ages above it, therefore the premium of 66 would not be appropriate for the age of 25 when having only 10 years "expectation." But as will be shown in the following paragraph, the mortality tables indicate that the terminal years of life usually have the same liabilities to death, without reference to the age from birth. Deceitfulness may commence just as truly at 20 as at 80, or in common language "one man is as old at 50 as another is at 60." Adolescence and decrepitude as a rule fill regular periods; sometimes

they run into each other, and in other cases the period between them is very long. (The former is the up, the latter the down-hill of life; between which ascent and descent there may be no distance at all, or a long plateau). The length of this period, during which, except for accidents, there is little risk of death, makes the difference in the active lives of men and in their insurance value. A person may be said therefore to have two ages; one, of small account, has reference to his birth; the other, of chief practical importance either for himself or for insurance, has reference to the time of his natural death, and is to be sought in his family history, modified by personal indications. The correct, and "American Popular" plan, is first to ascertain the "expectation" of an applicant and then assign to him the premium of that "expectation," no matter how few nor how many years he has lived. The man of 25 who has but 10 years of expectation has usually the same probabilities of dying during his expectation, as has a person of 66, or 50, or 20, who truly has the same number of years' "expectation." (At either age the liability is affected by vocation, residence, etc., but especially by inheritance. If the ancestry were sound to near the time of death, the party will be likely to live out his appropriate "expectation;" if hereditary disease existed in the ancestry, the party will be much more liable to die before his "expectation" is completed.)

The three above-mentioned persons should have the premiums of 25, 19 and 66 assigned to each respectively. We appeal to all the world of common sense, intelligent people against the interested supporters of the old plan, if this is not right. Is it not better than to apportion all three the premium against 25, especially if by so doing the best one of the three will probably not insure? If the choice must be made, we should prefer to take him only, and lose the privilege of insuring the other two. He can easily appreciate the fact that the old plan must cost him more—for if insured

with them at the same premium he must make good what they do not pay.

Is not the rule of our system as simple as it is correct? It brings no discredit on the "tables;" they in return never mislead it.

It uses the general average table for specifying the premiums necessary when once the premiums have been determined, but does not make the tables responsible for any blunders in assigning false "expectations;" often such must be made when age is the sole criterion for determining the "expectation."

A few illustrations will show how easily the principles are applied, with what security to the company and justice to the insured.

Here are two cases, one showing an ordinary man's judgment, the other illustrating the conclusion of a professional gentleman in favor of our system, and fully proving that its theory and working are easily understood.

Illustration 1. A person (Mr. A.) 30 years of age, who had been insured in the American Popular two years, came into its office with the request to have his premium reduced, since he had been into the office of one of the largest old plan companies, been examined and accepted. He was asked how long he thought he should live. He replied, "Likely to be about 50, that is as long as our folks generally live." He was then asked if he expected he should live to pay 30 premiums. "Of course not," said he, but the other company will take me." But if you are insured as at 30, you are expected to pay 32 premiums, and you do not expect to exceed 20 of them. "That's so; I do not know how they can afford it, but they are anxious to take me." Now, his father, the eldest of his ancestors, died at 53, his mother at 47, and no other of his kin had lived to be 50. Was he not right in his thought? Will not that company surely lose money? Was not the American system right that allowed him an expectation of 15 years, and therefore assigned him the premium of 56?

Illustration 2. An M. D., (Dr. B.,) agent of an old-plan company, came into the office of the American Popular, to insure a man 40 years of age on whom \$250,000 was already insured by various old-plan companies. He brought a copy of an application made to them. It indicated a defective case, and he was told that a more complete statement must be made out, and our plan was explained. It was new to him. Said he, "That is right, but it will be of no use to talk any longer about him, for he will not pay any more than he has paid, and by your plan he ought to go up fifteen or twenty years. I should put him at 55 at least; I am a medical man, and know that he is below the average if your plan is applied, yet he has not been rejected by any company." Who will make up the deficiency of that case?

Illustration 3. Mr. O. L., of Boston, age 59, eight months.

Father 84, died from injury.

Mother 94, old age. Did her own work until six weeks before her death.

Uncles.	{	Father's side, one died at 22, don't know disease.	
	{	Mother's " one, 92, health good.	
	{	Father's " 3 died of old age at 80, 85, and 90.	
Aunts.	{	Mother's " two 90, and 88, health good. 4 died over 80, of old age.	
Brothers.	{	1 died at 34, typhoid fever; 1 paralysis, 71.	
	{	Four, 80, 78, 68, and 62, health good.	
Sisters.	{	One died at 35 in childbed; 1 at 50, cancer.	
	{	Father, dead, 90.	Mother's { Father, dead, 95
Father's	{	Mother, " 93.	{ Mother, " 96
	{	Grandfathers, { 98.	{ Grandfathers, { 100
	{	90.	{ 98
Father's	{	95.	{ Grandmothers, { 99
	{	90.	{ 90

Great-uncles and aunts on both sides, each and all lived to be over 90. Can there be any difficulty in classing such a case? Can there be any doubt that the probability of this person, who is remarkably sound, will live for 20 years, is greater than that of the

average of people? Will it be fair to insure him so that he will receive only the advantages that the average of men are entitled to expect? He alone, of course, might die in an hour, but will not a hundred like him classed together, certainly average to attain a higher age than the average of men can? That is the true question.

We will now give the particulars of John Doe and Richard Roe; fictitious names, but real cases, insurable in any company. Would there be any difficulty in deciding to which should be assigned the longer expectation?

Read them carefully; they are fair representatives of two common classes. Note the wide difference of risk, then answer the questions: Can an intelligent Company afford to ignore such striking facts? Can an intelligent public *afford* to insure with them if they do?

RICHARD ROE—Age 30.

Height, 6 feet. Weight, 160 lbs. Expansion of chest $3\frac{1}{2}$ inches. Hair, dark and thick. Eyes, hazel. Beard, sandy. Complexion, dark. Features, large. Teeth, sound. Vocation, carpenter. Married.

Has lived only in Putnam Co., N. Y. Is now in perfect health.

Has had the diseases incident to childhood. No others. No injury.

Vaccinated, Habits correct and temperate, and have always been so.

Never uses intoxicating drinks, wine nor beer.

Bathing, rising and retiring, ventilation and meals, regular.

Paternal	{	Grandfather dead at 90. Father living, 66, health good.
	{	Grandmother living at 89.
Maternal	{	Grandfather living at 89. Mother living, 64, health fair.
	{	Grandmother dead at 85.
Paternal	{	Uncles. One died at 70; two living, 68, 72; health good.
	{	Aunts. All living, 65 and 74, health fair.
Maternal	{	Uncles. Two dead, 69 and 80.
	{	Aunts. One living, 65, health vigorous.
	{	Brothers, three, all living, health good.
	{	Sisters, six. One died in infancy.

JOHN DOE—Age 30.

Height, 6 feet. Weight 170 lbs. Expansion of chest, $1\frac{1}{2}$ inches.

Hair, dark. Eyes, blue. Beard, dark. Complexion, pallid. Features, small. Teeth, unsound. Vocation, painter. Unmarried. Has lived in New Jersey and Louisiana.

Is now in sound health. Vaccinated. Habits generally correct. Had diseases incidental to childhood. Also, Dysentery, occasional Liver disease, and Costiveness. Never injured by violence.

Uses whisky occasionally ; not often. Also wine and beer.

Bathing, rising and retiring, ventilation and meals, *irregular*.

Paternal	{ Grandfather dead at 65, dropsy. Father dead at 50, fever.
	{ Grandmother dead at 53, heart disease.
Maternal	{ Grandfather dead at 59, cause unknown. [health fair.
	{ Grandmother dead at 62, general debility. Mother 55,
	{ Uncles. One living, 55, health good ; one dead at 16,
	{ Typhoid fever.
Paternal	{ Aunts. One living, 48, health good ; one dead, at 23,
	{ one at 36, fever and dysentery.
	{ Uncles. None.
Maternal	{ Aunts. One living, 51, health good ; one dead, 23.
	{ Brothers. Two dead, accident, fever ; two living, health
	{ good. Sisters. One dead, debility ; one living, health
	{ good.

Third Practical Use of General Average Tables.

The third practical use of the general average tables is in assisting to determine the present value of a policy, or the reserve that should be kept on hand by a company to aid in paying the matured policy ; by which is meant, a policy on which as many premiums have been paid as will, with their interest, equal the assurance. That a portion of each premium should be reserved, will appear evident if it is considered, that if none were reserved and all the insured but one should die, there would be nothing with which to pay the survivor's heirs. The mode of using the tables for this purpose, is one of the most important matters in insurance ; indeed, it is transcendent, for if a sufficient reserve is not kept, there must

ultimately be a failure. "Experience" is of no use in this case. The old plan, until very lately, has taken advantage of forfeitures, and every other injustice that it could inflict on the insured. They will no longer tolerate it; every year the old companies have been obliged to yield something to the popular demand for justice, and have been losing the resources by which to overcome the effects of unscientific computations. The reserve must now be scientifically computed, and enough must be kept in a legitimate manner from the premium of the policy, to meet it if it shall mature.

The mode of using the tables for this purpose by the American system, is very different from that of the old plan. The former is simple, readily understood, easily worked, scientific, and fully insures the security of a company; the latter is complicate, tedious, unscientific, and not only hazardous, but fatal to any company working it, if cut off from forfeitures and the other illegitimate perversions of insurance. Indeed, politeness alone restrains from calling the old plan method of computing reserves, the most absurd way of obtaining a correct idea of the security of a company that could be devised.

To make the meaning of values of policies and reserves clear to the unprofessional, let us suppose each first (or after) premium divided into four parts. One is needed to pay expenses other than losses; a second part to defray its share of the year's losses; a third must be kept as a reserve; while the balance or fourth part may be called surplus, since not needed for the purposes of that year (it may however, be necessary the next), and might be counted as a portion of the third part and called surplus reserve.*

* As hereafter shown, a fifth part is needed by a "Mutual" and by a mixed company during its early years, for use in establishing its business; such a company should therefore at that period show a fifth part as surplus. Hence it must in its start always charge a larger premium than a stock company should make, since the latter supplies the fifth part of the "mutual" premium from its capital. It may be said that the "Mutual" fifth part would properly be

Now the questions are : How much must be reserved, and what shall be done with this apparent surplus ? The answers are vital to the ultimate welfare, and even the life of a company. Those given by the old plan, show an entire want of science. The pedantic methods and voluminous computations involving many decimals exhibited by the old plan, would induce the belief that a degree of exactness worthy of all confidence was demanded and obtained. Nothing is a greater delusion, and it would be called a farce or an imposition, except that it is sincerely believed to be substantial by many of its operators ; some of them know better full well, but make the others believe it is a reality, very learned, &c., and as it involves "the bread and butter question," as one of the knowing ones said, it is very easily kept up.

The question answers itself ; yet we wish to ask, for the benefit of those who have never thought of it, is it not perfectly evident that the reserve to be kept on hand, and the use of the surplus, should depend wholly on the kind of lives insured ? For example. If one company has a class of a thousand lives that will average to live 30 years more, viz., will pay 30 more premiums, will it require the same reserve as another company that has the same number of lives at the same ages, who will not average to live more than 20 years more, viz., pay only 20 more premiums ?

By the old plan, when the reserve is computed, the question is only of the age, but none is asked about the kind of life, whether

found in or with the first part, viz., the expenses other than losses. In that case the expenses must be divided into two kinds, 1st, those made on "construction account" or for establishing the company, and 2d, those expenses attendant upon insuring, other than those for losses and establishing the business ; the latter will be continuous, while those expenses incurred in the establishing of a company are temporary in the expenditure, though permanent in the investment. It is immaterial whether construction expenses are counted in the first or fifth part of a premium, they make it so much larger in either case ; these will be needed neither by the "Mutual" after it is established, nor by the "Stock" company at any time.

probably long or short, nor even whether sick or sound. The policy of a man who is breathing his last, or who cannot breathe at all, will be valued just the same as that of one of the same age who promises to live 50 years; for "dividends" as they are called, of surplus have been made to policies of persons already dead! the claims on which had not been sent in.

It may be said that the companies on the old plan value the "average" of lives at each age. Very well. Will the averages of the lives of different companies be similar if properly examined? Does not every one know (at least every insurance man does) that there is a world-wide difference between the cases that different companies will take? Besides, the officers of a company as well as the times change, and at one time a company under the old plan may be much more lax than at another, since, as has been shown, it has no approximate rule or measure by which to regulate its reception of cases, and is often worked by men not medically qualified.*

* A case has recently occurred. A medical gentleman of unusual ability had assisted in organizing a company, and was its dependee for examining applications, the value of his services being shown by the relatively few losses made under him. But with the increase of salary of the more powerful officers, and the construction of an expensive building, came a fit of economy in regard to the medical officer, it being thought that the secretary, having an exorbitant salary, was qualified to "pass" upon *plain* cases. The medical officer resigned. This was soon followed by the acceptance of a "plain" case, upon which in a short time, \$5,000 was lost, but which would not have been on the books of the company if its competent medical officer had been retained.

The number of losses in proportion to policies made, that have paid but one premium, is given in the Mass. State Report of the different companies. The reader will be struck with astonishment to notice the facts; the great per cent. number of some of the companies compared with others, will convince him, even if he does not understand insurance, that there is either the extreme of incompetence, or the greatest want of uprightness, in the management or working of some companies. If he shall conclude that there is something of both, he will not in many cases be far from right, for even the old plan is not to blame for the great number of losses on first premium cases that some companies exhibit. IT IS A PLEASURE TO CALL ATTENTION TO THE FACT, THAT THE

We will notice another respect (a vital one, fatal to the old plan), in which it uses the tables wrongly in computing reserves and in paying "dividends" of surplus. A person insured at 25 by the old plan, is allowed to have 36 years "expectation," and his net premium is proportionate, no matter what his probability of living, provided he is sound, &c. He lives until he is aged 40, and desires to receive the value of his policy. He has paid 15 premiums and expects the value to be proportionate. But he is under a plan of general averages, and is told that although 15 years of his "expectation" at 25 have passed away, apparently leaving only 21, the general average of 40 gives him 26 years more of "expectation" premiums to pay from that age, and that the value of his policy must be computed as if he had 26 more premiums to pay, viz., as if he had paid only 10, which will give him but two-thirds of the value that he thought his due. It is too small and is unjust. It is a species of forfeiture, that with like cases, has very much retarded Life Insurance.* It is no wonder then that the "ten payment plan," invented

AMERICAN SYSTEM BEARS THIS TEST VICTORIOUSLY, THE AMERICAN POPULAR STANDING LOWEST ON THE LIST, even counting all its losses in all its classes, which is not a *fair* comparison, since it insures all persons who pay a proper premium, and has losses among its impaired that should not be counted in the test.

* One of the most pretentious of the old-plan "authorities" (so called), says:

"One of the greatest practical drawbacks to the popularity of Life Insurance has been the disappointment and dissatisfaction of retiring policy-holders at the smallness of the surrender value paid, even when that value has been really liberal. All this would have been prevented by a distinct statement on the policy, in advance, of the sum to be paid."

This was said in commendation of the idea of "endorsing on a policy the value it will have each year." Why this idea should be commended in case of an old plan company, is not apparent. It is certainly true that Insurance has found a "drawback" in the small "surrender values" paid for policies, and it would doubtless be true that if they were "endorsed" and read (they probably would not generally be read unless at the suggestion of the agent, the last per-

by Mr. Freeman, of the N. Y. Life, now President of the Globe, so soon became popular, for though, like every point of the old plan, necessarily very unjust, it was a great advance toward giving a true value to "paid up" policies. The fact that the "ten, etc., payment" plan was immediately adopted and recommended by all the old companies and extensively used by the public, is important as showing that both assurers and assured seriously felt the injustice of the old plans, and that both equally desired to be rid of it. We may therefore believe that the old companies would gladly adopt the method of "thorough classing" if they could, since it is the only effectual way by which insurance can be correctly done, and will pluck out all the inequities of the old plan by the roots. We have to thank Mr. Freeman for his invention on another account, viz :

It is noticeable that the "ten, etc., payment" plan is directly at variance with one of the cardinal points of the old plan, and the practice of both, at the same time by the companies, convicts them of absurdity.

By the ten payment, etc. plan, a person who from any cause stops paying premiums is to receive a "paid up" policy for as many parts of his assurance as he has paid premiums. For example: if at 25 he takes a twenty payment policy and at 40, stops paying premiums, he will receive a paid-up policy for fifteen twentieths of his assur-

son to do such a thing), there would not be any "disappointment;" but it does not so clearly appear why there would not be "dissatisfaction!" In fact, there would be in the outset, and so great, when the assured perceived the small pitance they could receive in their early years by the old plan, that often they would justly "draw back" from Insurance altogether. This "endorsement" of "values" proves, as has been said, that by the old plan, in computing values, no heed is given to the condition of the insured, since the value is computed upon the age only of the assured.

The true way to withdraw the "drawbacks to the popularity of Life Insurance," is to cast aside the old plan, its "advisors" and "authorities," and compute "values" according to the American System, that needs for "authorities" only common sense and honesty of purpose.

ance because he has paid fifteen premiums, upon the number of which alone what he should receive is computed.

What becomes of the boasted necessity for computing the value of his policy upon the "general average" of life at 40? That theory is now thrown to the winds. But if he has also taken a policy with premiums, annual payment for life, and stops payment at 40, the same company will try to prove by arguments as long, if not as strong, as holy writ, that by the "general average" table of life from 40, the fifteen payments he has made must be counted as only ten! By the adoption of the "ten payment" without the application of the same approach to equity in the "annual payment for life plan," the old companies exhibit contradictions such as are generally seen when an attempt is made to modernize an old structure by a little patching here and there. It is as easy and as important to make perfectly equitable paid-up policies under both kinds of policies as it is under either, and thus entirely get rid of the old plan of unjustly and unscientifically valuing paid-up policies.

When the reserve of a person aged 40, who was insured at 25, is computed, the same principle is applied. Because the general average tables allot 26 years expectation to a person aged 40, the same is allowed to him, and his reserve is computed as if 26 more premiums are to be added to it, which will be altogether too small if he lives only until aged 61. Has a man, bating a small risk from accidents, any more probability of living to 66, because he has lived until 40, than he had at 25? If the capacity was not then in him to live until 61 or 50, etc., can he live until 66, merely because he has reached 40?

Suppose that only a small reserve (sufficient if there really are 26 years expectation) is kept because he is aged 40, and the balance is called surplus, and returned as so-called "dividends," will they have been properly returned if the person dies of old age at 50,

55 or 60, viz., if only 10, 15, or 20 years' expectation ought to have been allowed? Will not the long-lived have so much more to pay, or so much less to receive in the end? Of course they will. They are the drudging donkeys of the old plan. It is fortunate that their backs are so strong.

Again, if this person reaches 50, he will find that by the old plan of using the tables, he has 20 years of "expectation" yet allowed to him; that the value of his policy in proportion to what he has paid, is then smaller than it was at 40, and the *reserve to be kept is computed accordingly*, although his real or probable expectation, properly determined, will not be half the "expectation" of the general average. By this plan, as a person lives, his "expectation" is constantly extended; so that some should never die; but all do. What, then, is to be said of the plan?

It is no matter what pretentious names of persons* called learned, and all that, have invented and promulgated this plan, and have made, and are making money, sustaining themselves and families upon large salaries, and douceurs for commending and working this plan. It is submitted to the common-sense, intelligent, thoughtful American people, if there is not a fundamental error in

* The public would be surprised if it should notice, that in connection with the *diverse* propositions of the different old plan companies, often the same names are to be found as officers or sponsors. One company, for example, recommends itself for its age, large assets, &c.; another just starting into life with small assets, professes to be superior to any other, yet many of the same important officers belong to each! One company advertises that it is very particular, limiting travel and vocations, &c., while another having the same "advisory" actuary proposes to make *no distinction in travel nor in vocation!* One company has the same actuary as another but different premiums!!! all made, doubtless, with great labor and exactness! Either these differences are immaterial (some are of great consequence), the learning of the "advisor" is assumed, his virtue easy, or the pay large. It would not be thought that a person who cares anything for the truth, or for his reputation, ought to or would allow his name to be used in connection with *contradictory* propositions, but such things are tolerated and honorable(?) under the old plan. But observe that these deceits are not essential to life insurance business.

the old plan method of computing reserves and values, hazardous to the companies, to those insured in them, and also exceedingly unjust.*

If the old plan method were correct and the reserves were sufficient, and the surplus could therefore be returned, is it not worse than a farce to return it at the end of the year! as many of the old plan companies are now doing? It may be said that it cannot be ascertained until then. But in one company, in August last the clerks were computing how much the dividends would be on policies made in the October following—the applications for which had not in fact been made! The surplus must have been guessed of course. But what shall be said of a method that takes a premium from a man in October, on which, at the end of the fiscal year of the Company, three or four months after, a “dividend” is made that had been *computed in the previous August!* If it was *already computed*, why not *allow* the “dividend” *when the premium was taken*, and make it so much less? What was the utility of this more complicated manoeuvre? It *may* be understood if it is stated that a *commission* is paid on the entire premium taken, (*often the officers have also a bonus on business done*), and the

* The return of the surplus by “per-centage” was so evidently wrong, that it has by many companies been changed to “contribution.” Some say that this is to obscure the mode, in order that a retreat from former large “dividends” may be covered. Others say it is to enable companies to make large dividends to the older policies, to be used as examples. But though when it is adopted in an old company, it works great injustice to those recently insured, especially if they die early, yet as in a course of years, and particularly if adopted at the start of a company, the contribution plan, if honestly applied (it will permit great dishonesty undiscovered), is much the more just, it is but fair to admit that it was invented to avoid a part of the inequity of per-centage “dividends.” This is doubtless true, since both of the gentlemen who invented it are upright men; one of them being much the most accomplished actuary in at least this country, next to Prof. Paterson, of Albany (Advisory Actuary of the American Popular), who if any one, is entitled to be called the best mathematician in the State. But the contribution plan uses the tables wrongly in the computation of values and reserves, in the same manner as the per cent. method.

larger it is the larger is some person's income and the smaller of course that of the insured. Is the matter now plain? * The portion of premium that can be returned within a few years, should not be taken at all; the premium should be reduced by so much, and that portion which is taken to make security doubly certain against unforeseen contingencies and may be called surplus in reserve, should not be returned until the assured has paid what with interest will cover his assurance.

* But it may be asked why so many companies have begun to make annual "dividends" (so called), and if it is not recommended by some of the State authorities? We will briefly explain this and several other points at the same time, in an article to be found in the Appendix, entitled, "Conclusive Proof," &c. Please read it in this connection. Formerly, when Life Insurance Companies were formed, a certain number of persons had to be engaged to insure before the organization was allowed. This was required in order that a sufficient sum might at once be paid to cover any immediate losses. Premiums were required in such cases sufficiently large, not only to defray the losses, and the expenses of insuring, but also the expenses of establishing the company and expanding its working. After the company was established, the part of the premium levied might of course be not only remitted, but not taken. This shows clearly and fully that those who start a "mutual" company must pay more than those who come into it after it has been established, and without a new one has something very extraordinary, the established one is for the insured just so much the better as the amount that he gains by not paying the cost of establishing. If the Directors for honor or other reasons, or if the officers for the emoluments wish to start one, there seems to be no good reason why the public should wish to pay for establishing *too many*; every one is an extra cost; if the old ones are economically managed and well established, they must be the better.

But it was found to be difficult to engage a sufficient number of persons to organize, so the laws were modified, and in N. Y., whenever \$100,000 as a "guarantee" capital was subscribed, that amount being esteemed sufficient to secure the first insured, a company was allowed to do business—the provision being made that when a certain number had been insured or a certain amount of assets accumulated, the capital could be restored to the subscribers, and the

So says the American system, and also that the surplus should not be dependent on losses made year by year, for it is preposterous to say because no loss on a thousand lives has been made during a year, that the surplus, except as a reserve, shall be increased by that part of the premium computed for the purpose of covering losses

company go on as a "mutual" Company. This is called a "mixed" or a combined stock and "mutual," though it has not really any of the *true stock* characteristics. When this law was made it was intended that the "guarantee" capital should be withdrawn as soon as the insured were numerous enough for safety, and therefore the same premiums were necessary as in the previous case of commencing without capital, for in the "mixed" companies the cost of establishing the companies, it is perceivable, was to be defrayed by the insured, and there was therefore no advantage whatever to the insured in the "mixed" over the "mutual" in respect to premiums—and no reason why the public should wish to pay the cost of establishing *too many* of the "mixed"—for the "guarantee" capital was not to be used in establishing the business, but deposited with the State and repaid to the subscribers when business was sufficiently established. All but one or two companies in Massachusetts have repaid the "guarantee" capital and become purely "mutual" companies. The "guarantee" must be carefully distinguished from capital invested or to be invested. The "guarantee" is not, properly speaking, capital, but a bond or security against first losses, and not needed after its function has been accomplished. All kinds of companies, if successful, must make permanent productive investments in the act of establishing their business, viz., they must use and have capital, or the result of it called investment, which is only capital in the act of being used. Though, therefore, the old "mutuals" commenced, as has been said, without capital, they proceeded at once to gather it from their assured, as a necessity for establishing business. The "mixed" did, and do, the same thing, for the same reason, adding by so much to the premiums more than would be necessary if this investment capital was obtained from another source. Observe, then, that all companies must alike have and use investment or permanent capital; but notice the difference in its source and the expense of collecting it, and the probable difference in the care in investing. The mutual and mixed collect their investment capital from the assured, at an expense of not less than 25 per cent.; that is to say, if \$75,000 must be invested in establishing a company, it will be necessary for the "mutual" assured to pay \$100,000 that the company may realize

and returned to the insured immediately. The American system holds that a serious error has here crept into insurance computations, and that such surplus should be reserved until the maturity of the policies, lest losses not provided for should occur in the older ages. For if the surplus is reserved and the insured are properly classed, and do live to the maturity of their policies, they will get their own with interest, and if they do not, there will be so much the less for the long-lived to pay to the short-lived.

Since the first edition of this work was written, some companies that have recommended yearly payment of dividends, have proposed to give great advantages to the assured who shall postpone receiving them for several years. This is correct.

\$75,000. To raise this by stock, costs the stock company nothing. So that, if its assured should pay ten per cent. interest on that amount, it will be no more than seven per cent. on what it will cost the "mutual" assured in order that their company may realize the amount needed, after commissions and other collecting expenses are paid.

Observe that the capital of the stock company serves two functions: First, it is a "guarantee," and also an investment capital: and when its former function is accomplished, Secondly, it remains to be fully used as an investment, saving the drawing of so much from the assured. Is not that which can completely serve two purposes better than that which can serve but one? The "guarantee" capital of the "mixed," instead of being incidentally for the purpose of security, as is the case in the stock company, is solely for that function, making it necessary to draw an additional investment capital from the assured, in the form of higher premiums than are necessary on the stock plan. Hence, as we said, the "guarantee" should be withdrawn when not needed, and should never be paid more than the interest it earns, since it never saves nor earns any thing for the company. But it was soon found that with the false methods of the old plan in computing "reserves," or from the large premiums charged, the surplus (so called) was so large, when the business was even partially established, that there was yearly quite an amount that the laws of the State would permit to be returned to the insured, or paid over to somebody; and as the "stockholders" of the "guarantee" controlled the

The American system in the first place, proposes to inform itself of the probable "expectation" of its insured, and with exceptional instances will have no occasion to extend this as a person increases in age. If at 25 his "expectation" under the American system has been determined as 36 years, at 40 years of age with exceptions, his expectation will be considered as 21 years, and the reserve and value

disposition of that surplus which they shrewdly called "profits," but which, if the reserves were *properly* made, were not such, they very naturally argued that it would be better for them not to withdraw the "guarantee" capital, but to let it remain and make it an excuse for dividing with the insured the surplus. "Why not take the whole?" Because that would destroy the "mutuality" of the company, and the "mutual" feature being popular with many, if the "guarantee" stockholders can *call* their company "mutual" they may find their share larger than if they should take all. Some by their charter are allowed to take as high as thirty per cent. of this surplus, and if a large business is done at full premiums, so that with old plan computations there is a large surplus, this will equal one to two hundred per cent. on the "guarantee." (It is worthy of notice here that the stockholders of the "mixed half note" companies, never take any part of their share of the surplus in the notes of the insured. Does not this indicate which part they think of most value?)

The laws should compel all "mixed" companies to retire their capital as soon as possible. It is an outrage only tolerated by the ignorance of the public, to have the assured under the necessity of advancing all the investment capital necessary to establish business, and then continue to pay large "dividends" on a "guarantee" capital the need for which has past. Some "mixed" companies will advertise that they divide only legal interest to the stockholders, but when the stock cannot be bought for love nor money, and the "guarantee" capital if retired as it ought to be, could be more profitably invested, most persons will be inclined to suspect that there is some decided reason for not withdrawing the capital.

A *stock* company proposes to properly invest a capital not merely for security to its early insured, but to *establish its business*. It therefore can from the first make the premiums by so much less, as the "mutuals" and "mixed" are obliged to charge more for the purpose of establishing business. These can only give back or reduce that part of their premiums when their business is

computed accordingly. This certainly does not diminish the security of a company, and does justice by all the insured, and is the only way to secure equity to the long-lived, who are thus relieved of the unjust burdens imposed by the old plan. Certainly, persons should have the value of their policies computed upon what they have paid, in annual as in 10 payments, rather than upon what it is hoped

established. They must, if "mixed," charge enough to keep their "guarantee" capital good, since it is legitimately only to be used to secure the early insured and then returned. But a stock company proposes to use its own capital to establish business, and therefore, it would be improper for it to keep its capital up. Some persons, not noticing this distinction, have supposed that if a stock company does not continue to show its entire capital on hand it has been impaired, precisely as would be the case if it was a "mixed" company, charging the high premiums. If the capital of a stock company should continue in full in the possession of the company, and it should never make any returns, it would show a greater outrage on the public than that of any "mixed" company, for it would show that it was making its insured pay for establishing the company the same as if it were a "mutual," and not promising in the end to divide even as unfairly as the "mixed" practically do. By the stock method, the persons who first insure in a company pay no more than those who enter after it is established, nor than those who enter a "mutual" after it is established. Hence the reason why stock premiums can be lower than the "mutual," for as the stock companies reduce the premium, or make "dividends" in advance, at the beginning of the year, they can take off more than a "mutual" can allow, as it can lower its premiums only after business is established, and even then only makes returns at the end of the year; the "mutual" also pays a commission (and perhaps a bonus to officers) on collecting all that it returns. Half of such commissions would amply pay a stock company for its investments, and therefore it can *afford to insure* for less than the "mutuals" or "mixed" companies by so much as the other half would equal; while its agents can also do better, for though at the same per cent. commissions they would get less on any one case, yet, as they can offer insurance on more favorable terms than the "mutuals" or the "mixed" can, they can do more business in the same time. The stockholders of a stock company would not certainly want any more dividends than those that some "mixed" companies take, nor could they take as much, as

to get out of them. Again, we appeal to the common-sense, intelligent, thoughtful American people, to say which plan of using the tables is right.

With a full opportunity of observing both methods and their effects, and with a clear comprehension of each in all its aspects, we can arrive at but one conclusion. We are like the "one in whom persuasion and belief had ripened into faith, and faith become a

they will be watched in that direction, while the "mixed," by advertising themselves as "mutual" beguile the public and cover their acts.

Stock companies if well managed, are, as is seen, the best of the old plan. The stock plan of any system is the best. Who would now-a-days think of insuring his house or other property in a "mutual" or a "mixed" Fire or Marine Company? Most people have had sufficient experience with those already. The "mutual" life insurance companies in this country have not turned out so badly, because some of the oldest have been managed by men of the strictest integrity, and their example and methods have compelled others to do better than they would naturally have done. The "mutual" idea is essentially vicious as we have seen, and in Europe has proved itself to be so in life companies, as it will in time in this country. Stock companies have long and justly had the confidence of the people, and any one can perceive that on every account they are equal to the "mutuals," and in some very important respects they cannot from the nature of the case be equalled by the "mutuals." (See Appendix.)

The American Popular, of course, adopts the stock plan; indeed it is altogether impossible to work some of the most important features of the American system under any of the "mutual" plans, while it is more truly mutual than any "mutual" pretends to be. Its theory (and its practice) is, that all—Stockholders, Directors, Officers, Agents, Examiners, and the Assured—should be pecuniarily interested in the *kinds of lives* taken, by means of the division among all, of the pecuniary advantage gained by the working of this system over the old plan. Nothing is desired from the Assured unless they can do better than elsewhere, and then only a small part of the excess. Therefore is this a truly mutual system, thriving through the honest self-interest of all concerned.

passionate conviction." We established our company in belief, we now work it from conviction.*

But it may be asked if several of the States do not require the companies doing business in them, to keep a reserve based upon the old plan use of the general average tables. Certainly. But that does not help the matter. The error is "hoary" enough, if authority is all that is needed to establish it. That is all it has to rest upon. It does not make the method any less hazardous to a company or unjust to the assured, because "authority" honestly believes it to be correct, as doubtless it does and as do many of the old plan companies themselves.

The State Authorities do not ask a question about the kind of lives reported, only are they sound, or supposed to be so when taken, when in fact the probable length of life is the very pith and gist of the whole matter.

The reserve required by the States, is wholly computed upon ages as by the old plan, before shown, and the insured of all companies are upon a par. Now, in one village upon the Hudson River, one company, not considered very careful, lost within the last 18 months 5 cases insured for \$5,000 each, no one of whom had been insured two years, and only one or two of whom had paid two premiums. They died of consumption and of heart diseases, with which they were doubtless affected when insured. In another city on the same river, an agent boasted that his company had paid four losses out of 44 cases he had taken in five months. They died of lung diseases,

* This feature of the American System has been partially adopted by several of the old-plan companies, and used under different names, showing improvement as far as they can go. One, under the name of "interest-bearing plan," proposes not to make "dividends" until the premiums paid, at six per cent. interest, equal the Assurance. This is good except in name (for all policies are "interest-bearing"), and that it is not certain that the company will obtain so much interest. But it is the best of all the old-plan companies for the long-lived, and the most just of them all.

with which doubtless they were affected when insured. He said it was thought to be advantageous to have losses, it encouraged insurance! So it would among the short-lived, but what would the long-lived think? One company reports, that in the last three years, it has lost 41 cases that had paid but one premium, and as it had issued only six thousand policies in that time, of which not more probably than five thousand were taken, a loss is shown of eight in a thousand who had paid but one premium. No wonder such a company found it necessary to assess the notes of its assured this year! There is, then, a great difference in companies (see Massachusetts report), in regard to the kind of cases insured.

The States take no notice of this, but compute reserves upon the ages; some ask if the companies insure other than sound lives, and when the answer is affirmative, the reserve is increased upon those policies on which an extra premium has been made, if that fact has been indicated. This is not usually done by the old plan, for when a case would be fairly rated up by the American system—under the old plan, often a party who is considered weak will be offered a short term endowment—and thus is reported to the State as all right, and an extra reserve is not required of the company. The companies usually represent that they take only sound lives. One, the N. E. Mutual (the best of the Eastern companies, next the State Mutual at Worcester, as shown by their proportionately small number of losses), has this year followed the example of the American system, and answers the question thus:—"The company insures all lives on which an equitable rate of premium can be adjusted."

By the table of losses it appears that most of those that reply that they insure only sound lives, make more per cent. losses of those who have paid but one premium than do those that insure any life at appropriate premiums. (The American Popular stands much the best in this respect.)

Again, suppose that a company is careful not to be burdened

with too many lives that will die during their early years of insurance: unless it applies the tests and uses the methods of the American Popular how can it have any security that its reserve will be sufficient to pay the policies that continue through early years, but do not reach maturity?

If the reserve computed upon the old plan is sufficient in the case of the least careful companies, all are secure. Such, however, is not the case.

That the companies do not obtain a natural proportion of the long-lived, they tacitly confess by rejecting the unsound, for if they did obtain the natural proportion of long-lived there would be a balance; and no need of rejecting any. Indeed, they acknowledge that they reject the unsound; because if they took such they would not obtain an average such as would sustain a company. To reject thoroughly is essential to their vitality. Do all the companies do this with equal thoroughness, or to that degree that is consistent with safety? By no means. We are in a position to know; for we learn the course taken by most of the cases we rate up (making to them a higher premium); they usually apply for insurance elsewhere, and we observe, that they can more easily be insured in one company than in another. Will a company like the Security, of New York, officered by capable, careful men, with medical examiners competent by education and experience, be likely to take cases as readily as a company officered by men who care only for money, and whose examiner was elected when the father of the young man subscribed liberally to the "guarantee!" Shall the "experience" of such a company as the "Old Mutual," that can reject a case without detriment to the salaries of its officers (but which does not do it as often as it ought, nor, it is feared, as often of late as it used to do), the managers of which are mostly men of the highest ability, be taken as a criterion for measuring the security of a company, the president of which said he "took

all that offered if they could go alone and would take a big endowment?"

Again, does it make no difference whether the insured have one vocation or another? Some companies advertise that they make no limit to travel, residence, nor vocation. One person who insured in such a company, went to work in a powder-mill within a fortnight after. Yet the State computes the same reserve on his policy as on others of his age. An agent trying to insure a Railroad conductor, said that "the company he represented charged nothing extra for such vocation." The conductor told him, "That is enough for me to know of your company, for I know there is more risk on the road than in average business, and a company that runs such risks for nothing will not live as long as I hope to," and turned on his heel.

The reply to all this is of course that the State computes for an average, not for isolated cases. The answer to which is that some, and it is believed most, of the old plan, at least the mutual and mixed companies, do not of late years obtain an average. Shall the experience of the "Old Mutual" be taken as a guide for computing reserves in a company that charges no extras for travel, residence, vocation, &c.? Yet that is, this year, the basis in New York.

It is evident, then, that if the State would give any good degree of security to the insured by its supervision of Life Insurance, it should inquire what kind of lives each company has; and instead of bewildering its clerks in numberless decimals, for the purpose of determining the value of a policy and its reserve, let the capacity for living of the persons insured, their residence, vocation, &c., be examined, by means of the family and personal record. Then it would often be found that there is weakness where strength was supposed to exist. At least, let some regard be paid to the *proportionate losses of number of each Company!* the diseases with which they died!! and the time insured!!! Let each Company be

required to report the condition of health of it insured, that the blunder need not be repeated of computing a trifling reserve as sufficient when the party was already dead, and the whole assurance must be paid in ninety days; nor other errors such as the following case illustrates:

Mr. A., mentioned on page 38, had last year such a reserve computed against his policy by a State authority, that only 14 more premiums would be required to equal his assurance, because two years ago when insured he was rated by the American Popular at 56, as he should be—by his own allowance. (See the case, p. 38.) But this year that State will compute the small reserve against his policy that will require him to pay 32 premiums to equal his assurance, as the company that has the good fortune to report him this year “insures only sound and the best lives,” at their actual age; and will report him at 30! But will that cause him to live 32 years? He does not think so, and he is right. Will the decision of a State upon his reserve make it sufficient to cover his assurance ere his death? He does not think so, and his instincts are reliable. Authority higher than that of any State established the Laws of Life, and what contradicts or contravenes them must in the end go to the wall.

This only shows in part the folly of State supervision based only upon mathematical computations. Such supervision is of very little utility. It may compel some of the dishonest companies to keep more reserve than they would voluntarily, but it does not require some of them to keep enough for the lives they insure. However honestly applied and however honestly believed in by the State authorities or by the companies, the old plan use of the general average tables in regulating reserves, makes expense without yielding a reality. There are, it is believed, old plan companies reporting regularly to the several States, and recognized by the “authorities” as in good standing, the insured lives in which will not aver-

age to live out two-thirds, if they do one-half the time necessary to cover the assurances made to them ; yet those companies are making "dividends" every year ! and some of them receive the compliments of the State authorities for the large business they do. The question for the State to ask is, what kind of business have they done ? What kind of lives insured ? By the answer, compared with their reserve, it can be determined if they are secure.

It is here to be recalled that some of the old plan Companies allow dividends in cash ; or to reduce premiums ; or to act as new premiums for additional assurance ! at the option of the assured !! The short-lived will be as sure to choose the last as the long-lived will be to prefer the former two. It is easily seen that any advantage of selecting or rejecting lives is lost, in regard to such additional assurance, no distinction being made in premium in these cases except for age. As would be supposed, persons often thus receive assurance when in the last stages of disease, and in one case known (there are probably many like it), although the utmost haste was made after the person had signed the request to have his dividend increase his assurance, before the fact was accomplished he was dead. Yet these companies are allowed to report that they insure only sound lives. This additional assurance has by the State authorities the same computed reserve as the other, and though some of the old companies will not give such additional assurance unless the party is sound, the State makes no distinction in their favor. If it does not diminish the reserve required from these, it evidently requires a very insufficient reserve from those. Such are the incongruities of the old plan.

It is well for the State to require pledges of a Company when it starts, to guarantee the early insured. To establish business most advantageously a capital is needed, but if not used to establish business it should be retired. Particularly should this be the case *when that capital is composed in part, or as in some cases in full,*

of the notes! of the stockholders. They will not, of course, voluntarily retire such a capital, on which they receive a dividend equal to legal interest on cash loaned. This is a great invention for enabling men to live on the interest of what they owe; the only way in which interest can be received on a note by the maker of it! Yet these companies are allowed to do business by the authorities of the States all the same as if they were conducting an honorable business. Doubtless, additional State laws are necessary to meet such cases, but let us have them, and let not a company be allowed to call itself a "Mutual," when it has stockholders the *whole of whose stock* is their own notes! upon which they draw a full legal (or even more) per cent. as if cash had been lent!! Let us also have laws that define the value of the notes of irresponsible men when paid for a part of their premiums; let not such notes be computed as any part of the reserve, nor let the premium notes of any person, nor a loan on premium be computed as a reserve when a company promises in its own advertisements or allows its agents to promise that the notes or loans shall be returned as "dividends." Let only an honest business be done.

Again, investment of funds should be controlled; especially, however, is it important for the supervision to see that *too much investment is not made in short lives*, which are much the greatest sources of danger to the safety of a company.

There should be stricter laws against cheating in case of insurance; cheating by the insured, by the agents, by the examiners. The latter should be properly paid, and held responsible for the result of his work. Cheating, or conniving at it, by the agent should be criminally punished. To protect against cheating by the insured in case of death, the officers of each company should be required to submit all the facts regarding each loss to a State officer, and be allowed to pay the loss only with his assent or by the compulsion

of a court. To pay unjust losses is exceedingly demoralizing to the cause of insurance; while there is corresponding injustice done to the co-insured, and to the public a moral injury.* Little of this can transpire under the American compared with that which takes place under the old system, but all of it should be prevented as far as possible.

Let then the States, if they do not throw aside their tedious tabulations and computations, also ask, not only for the number of years that an insured person has lived, but, in accordance with the American system, inquire how many he will probably live, and require a reserve accordingly.

Again, and in concluding this part of the subject, we ask, which method of using the tables is right? The American system will not suffer in its security from the application of either by the authorities, because it will always regulate itself by its own use of the tables and be certain of a sufficient reserve; while if it is right what will by-and-by become of the old-plan companies?

* The highest prosperity of life insurance demands that, as far as possible, the companies should protect those who receive assurance from all risk of having any slur cast upon them. It should be distinctly understood that generosity, benevolence, liberality, etc., have no part in the settlement of, or loss by, the death of the insured. His heirs should not be allowed to feel that they are beggars, or solicitors of a charity. The assurance should be paid only when it is found by a thorough examination to be justly due; and then paid as a matter of business, equity and justice, for which there is no one to thank but the deceased. The heirs of the assured can then have, hold, and enjoy the assurance in any manner that best pleases them, as their own property, without any qualms of conscience, and without any danger of those unpleasant imputations that will often occur when the business of insurance is conducted in a careless manner, and losses paid without due investigation. Is not this idea better for securing the confidence of the public than any protestations of virtues that nobody believes to be peculiarly pre-eminent in the bosoms of insurance officers more than in those of other people?

CLASSIFICATION; THE GREAT FEATURE OF EQUITABLE INSURANCE.

We now reach the most interesting as well as the most important feature of Insurance, by the application of which perfect justice is secured to the assured, and certain security assured to the company. It is of no value to the old plan, since it cannot use it; it is like the grapes to the fox. Some of the companies working on the old plan, speak of classing and grouping their assured for purposes of making a dividend. Some of the "relief associations" also speak of classing those within certain ages, &c. But though a slight approach toward justice is secured by such means, they have no relation to the *thorough classification* according to the kind of life, that is here meant.

With the explanations and preparations heretofore made, this whole matter of classification, though very important, can be very briefly explained, yet so as to be easily understood.

The question is often asked, Why class persons? Cannot equity be produced by varying the premiums according to the cases?

To vary premiums is not sufficient for equity, nor, of course, for security, as long as the business is done by men of imperfect judgment.

First Necessity for a Classification.

1st. It is impossible to perfectly adjust the "expectation" of the assured, or to know what the future per cent. of interest or of expenses will be. It is therefore impossible to compute premiums exactly adapted to the mass of cases taken. If it could, it should be; but as it cannot be, *there must be a sure surplus equitably provided for*. It will enable those who live long, to receive more than they are promised, while those who die earlier, and receive more than equals what they pay, with its interest, will have no cause of

complaint, unless the excess is exorbitant. Now, as there is a larger per cent. of deaths yearly in inferior classes of lives than there is in the best, the "expectation" cannot be as correctly calculated for the inferior lives as it can be for the best. For the former, there must, therefore, be a larger allowance made for error, in order to make sure of surplus. But if this allowance is found not to have been necessary, it ought not to be divided with the long-lived, upon whom no part of it has been assessed, any more than the large surplus that is sure to exist in the long-lived classes should be divided with those of the probably shorter lived. Therefore, there should be separate classes, each to share its losses and divide its surplus.

Second Reason for Classification.

2d. In some families there is such a blending of short and long life, and the personal indications, under our present knowledge, so dubious, that it cannot be determined to which kind of life the applicant really belongs. If he is charged a high premium without being classed, he has no remedy. But if he is classed as inferior, and proves by living that he really was superior, he can be transferred, and receive back with interest all that he has paid in excess. In this way only can the company be made secure, and justice rendered to the assured.

Third Reason for Classification.

3d. Many persons instead of paying premiums annually for a long time, prefer to pay larger premiums yearly for a few years, viz: for 15, 10, or 5 years, or wish to pay in one premium. Such persons are not as much risk to a Company, year by year, nor, at present rates of interest, for so long a period, as those who pay annually.

Those, therefore, who pay the larger premiums for their own

convenience are entitled to something more ;—to the advantage that capital yields in every business—a pecuniary result corresponding to the investment. This can be attained only by sub-classing them in accordance with their kind of payment.

Fourth Reason or Necessity for Classification.

4th. The laws of several of the States require Companies doing business in them to keep on hand a reserve computed upon the general average tables. Such reserve is *much larger than is necessary as against the best of lives*, as is evident from the nature of the case; indeed, it is *twice or three times as large* as is necessary for the best classes alone. If the same number of each class should be received by a company there would appear to be a balance; and if smaller premiums were made to the better and correspondingly larger ones to the poorer, there would be sufficient money obtained to allow the reserve of the general average to be reported. Now suppose that one company should obtain the chief part of the better lives at the smaller premium, and another company the greater part of the poorer lives at the larger prices, the former, though really in the most desirable condition, could not show a general average reserve, while the latter could, and by the State computation would be decided to have a surplus, while the former would be prohibited from doing business.

But suppose that when a company reports some of its lives as superior and insured accordingly, and part of its lives as inferior (but not because unsound), and insured accordingly, and by the State the reserve for the best lives is computed for their actual ages by the general average tables, and the reserve for the inferior lives at the higher ages at which the company rated them (while by an old-plan company they would have been rated at their actual ages and the reserve computed accordingly) would the company be able to exhibit a sufficient reserve ?

Precisely in this position would the American Popular be placed if it should, by reducing premiums to the lowest safe figures, try to give the long-lived their due;* for the premium that is sufficient for the best lives to pay, is not sufficient to allow a reserve equal to that demanded by a general average computation.

What then shall be done to maintain the general average reserve required by some of the States, and at the same time do justice to the long-lived?

Let all the insured be thoroughly classified; the members of each class paying only its losses and dividing its surplus.

Then, though the long-lived may pay a larger premium than is absolutely necessary to equal their risks, those who live long will have so much more in the way of income to themselves in their

* It must be remembered that this system comes into competition with more than one hundred companies working under the European system, none of which can adopt the thorough classification of the new system. Some of these wield vast amounts of money, and the smaller ones hundreds of thousands, of which some do not scruple to make illegitimate use, in conducting their operations,—witness the large subscription, made last summer, to sustain a war upon the Stock companies. Is it to be supposed that they will not take advantage of the most effective means that they can use to control an influence against whatever is in their way, especially as very powerful personal interests, to the amount we are told of scores of thousands of dollars yearly, in some families, besides much personal ambition, are enlisted in favor of the old plan? Is it supposable that the Insurance Department in each State is from its nature so immaculate that it cannot be biased by any illegitimate means in any instance? There was one Judas even among the twelve. Indeed, it has been abundantly tested. The inability of most of the old plan companies of other States to compete with those of New York, has awakened such jealousies that they have in more than one instance influenced the report issued by a State Department, both directly by erroneous assertions, and indirectly by innuendos, or by a contracted appeal to “home” patriotism. Of course a large majority of State Officers will have so much self-respect, and such enlarged views of their important duties, that their opinions will be candid, even when wrong, and unbiased, unawed and uninfluenced by any of those means that moneyed power knows so well how to use. But we must not expect too much perfection of human nature, nor that many public officers will very strongly espouse and support that, however correct, against which powerful interests are antagonistic; a few will, as the brief history of the American system testifies.

advanced years, while their heirs will also be entitled to a large increase of assurance.

The great question with the long-lived is not so much what premiums they must pay, as it is, how many losses they must share! There is where their money goes, and pretty fast when each one, as in the old plan, is sandwiched between two short lives. (It will be fortunate if there are only two.) Thorough classing is the only way to stop such inequity. Thorough classing can be done only under the American system, which, as yet, is completely worked only by the American Popular. Some of its points, such as can be adopted by the old plan, some companies have, much to their credit, imitated. It is hoped that their sense of honor will induce them, ere long, to acknowledge the source of their improvements.

Let it not be supposed from what has been said that the supporters of the American System, however much they may regret the apparent reason, animus, and injustice, have any objection to the *fact* of the requirement of any State in regard to reserve. They do not; they think as much ought to be kept as has been required by any State, and even more, and they also rejoice at the action requiring such a reserve, since it enables them to confound calumnious objectors, by pointing to a reserve—sufficient even when required by a very unjust and excessive computation—and to triumphantly demonstrate, that if there is any safety under the old plan, there is still more under the new, and that while the old plan will not bear the test of time, the new plan certainly will.

Fifth Reason for Classification.

5th. By thorough classification all temptation to make too low premiums, too early or too large returns of surplus ("dividends" so called) is removed. If there were no classification and all that a person could expect of equitable treatment consisted in the amount of his premium, each would be anxious to have it as low as

possible—and solicitude to secure the business, would, of course, tempt and often over-tempt officers. We see this in the old plan companies that promise “liberal terms” and “large dividends,” and at inopportune times, &c. (“Liberal terms” to whom: the short-lived who receive, or to the long-lived who pay so much the more? Let no person be beguiled into the idea that if six is taken from ten there are six left, or that if six is taken from ten by the one who paid but four, six is not paid by the one who gets only four).

When the insured are classed, if one is rated into a class inferior to that in which he belongs, and by living proves it, the error can be corrected without loss, by transferring him and allowing the excess of premium with interest. If, for example, a person should pay as much for \$1,000 in the inferior, as he would for \$2,000 assurance in the superior class—and on account of living as long as the average of the better class he is transferred into it, he will receive the \$2,000 the same as if first insured for that amount. The only difference is, that if he dies meantime his heirs receive only \$1,000. With our arrangement there is perfect security; with the other, or old plan, even in the best companies, there is doubt of security, and in others a certainty of insecurity. The security is worth all it will cost a man who dies early. Every man of sound judgment will appreciate the right plan when it is explained; therefore, neither intelligent officers nor agents, acting under our plan, have any inducement to try to place a person otherwise than right.

Additional Equitable Feature.

To still farther satisfy the assured, to induce them to seek security, and as a matter of equity, the advantage of an early return is constantly presented; for as soon as the premiums paid with the interest they earn equals the assurance, a return of part of the interest can, and justly should be made. The larger the premium

the sooner and the larger this return, and the longer the period during which it will be made. As this return will not equal all the share of the assured, it will be fully made up when his assurance is paid. This advantage, with that of no risk of any forfeitures, the payment of the real value of his policy, if he needs it, and other like points of equity, to a person who is naturally long-lived, more than balance the advantage of receiving a larger amount at decease, if he die early.

We have no fears, then, that the classification of the American Popular will not be approved by the public, and by the assured if it is understood. We are not tempted, therefore, to rate people into classes to which they do not belong; but it is for our interest to explain the whole matter so that each of the insured shall clearly understand his true interests. Is not this the exact reverse of the old plan, which is constantly tempted to obscure its methods, so as to prevent its assured from perceiving their true interests? It cannot explain to its long-lived that they pay altogether too much in proportion to what they will receive; nor can it explain to the short-lived the insecurity which they produce by paying too little.

What we ask to be permitted to do, can not be done in a moment, especially in the face of an ingenious, interested and, to a large extent, unscrupulous competition. The admirable features of the American Popular cannot be expressed in a sentence, nor all its equitable balances explained to one who has not the time to read nor to hear; most will think they have not, until they appreciate the importance of the subject; but for those who wish, as some do, to read or to hear, **WE HAVE DOCUMENTS AND EXPLANATIONS THAT WE DEEM BOTH INTERESTING AND VALUABLE.**

We are equally anxious to obtain all the light possible, bearing upon this subject, believing it, apart from our own interest, the most important of all matters in its relation to human welfare.

Equity Satisfied only by Thorough Classing of Risks.

Under all these six heads it is plainly indicated that justice requires that lives or risks dissimilar, from whatever cause, should not be classed together. Thorough classing is, therefore, the keynote, the highest attainment, the essential method, the *ne plus ultra*, and a *sine qua non*, of all correct Insurance. By thorough classing and sub-classing, and by varying the premiums somewhat in each class, justice, first or last, will be meted out to all. Only by it can the long-lived obtain their due share of moneys paid into an Insurance Company. With thorough classing, if, as should be the case, more is paid for security than necessity will require, the excess can be returned, as it should be, to the members of that class who are similar to each other, *and equally entitled to share it*.

Thus while insuring upon the basis of family average, modified by the personal indications of the relations of each individual to his family average, makes it easy to insure all lives at such premiums that each case is a good one—on the other hand thorough classing approximates the working so near to perfect justice, that none can complain.

It is observable that the most difficult part of insurance is the determining of the physical condition of the applicant, and not the deciphering of the personal indications that show the relations of the lifetime of the individual to his family average; especially is it difficult to determine those indications that while he is in apparent health prognosticate impending disease, and will shorten the "expectation" of his life. These are the most important matters that can engross the attention of those who wish to improve insurance.

It is very easy to do what has been thought to be difficult, viz: class sound or unsound lives correctly after it is once certain that they are sound, or being unsound after it is known by what kind of disease they are affected or threatened. The great difficulty is to detect incipient disease, or rather one might say, tendencies to

diseases before it can really be said that disease exists. All the old-plan companies attempt to do this; or as it might be expressed, attempt to class applicants into two classes, those who are sound and those who are not, the latter being "rejected." By the new plan, this is also the first step, and can be done more effectually than by the method of the old plan, because we have the further classing of the individual case under close observation, and to do that we require additional data that tends also to exhibit tendencies to disease. It is more important to the old plan companies, if possible, than it is to ours, to distinguish tendencies to disease, as their success depends vitally upon rejecting all in whom there is suspicion of disease; while by our plan they may be rated up and insured with perfect safety to the company, and with equity to themselves if they shall prove to be sound. If the old plan companies desire, as of course they do, to make the rejection of unsound cases effectual, they should adopt the new plan of recording, judging and rating cases.

Our principles and methods, instead of being difficult to apply, are no less easily comprehended and applied than they are effective of the desired results. It may be safely asserted, that any clerk in the office of the American Popular can, from the data and record obtained from applicants, so class them that there will be smaller losses made by a company, than can be attained by experts working according to the methods of the old-plan companies. When our methods are worked by the experts, the results must be incomparably better than the old plans can show. This is seen by our results, produced within the three years of the Company's history (at the time of printing this second edition.) For proof of this, see recent documents, exhibiting a mortality in our several classes corresponding to the premiums charged. Not that men die according to the premium made, but that the premiums have been made appropriate to the probabilities of the mortality of each

class, as is shown by the results. Indeed, so simple and so clear are the principles and the methods upon which thorough classing is worked, that it is impossible, except from wilfulness or from culpable negligence, for any competent person to fail by their application to secure for a company more money, relatively to its losses made by death, than can be obtained otherwise, while most important of all and a *sine qua non* of equity, the money will be relatively drawn from those classes that should pay it.

A few moments' inspection of our principles and methods will convince any person of their value, practically considered, and if he is a competent medical man, will spread a glow of delight through his mind, since he cannot fail to perceive the truth.

All that we wish is more knowledge of the indications of tendencies to disease, long before they have become apparent to the ordinary eye, or to the person himself, who may think himself a sound man, and must, indeed, be so called.

What is Wanted.

In regard to this, too much ignorance prevails. Medical men have generally been called upon to determine the physical indications of soundness or of ill health, while to the indications of how long a person who is sound may live, but little attention has been given.

When a person is viewed by a practised eye, there is a general appearance that indicates more perhaps than can be expressed by any description. Yet in many cases an analysis of the appearance can be given, and specific points described. Dr. Smith has interestingly shown that a "trunk long in proportion to the body" is an indication of longevity. This has been proved by thousands of cases noticed. Other similar indications, perhaps of length of life natural to a person, perhaps betraying incipient diseases, or telling of those that have been, have doubtless been observed by one and

another; * for example, a waxy clear appearance of the skin, especially if associated with stellated blood-vessels in the cheeks, quite uniformly indicates incipient diseases of the kidneys. A tendency

* One person suggests that while a short foot may be derived from long-lived ancestry, a long foot always indicates it; while a long hand, with long, straight, deeply cleft fingers, betokens the inheritance of probable short life, the opposite of which is indicated by a plump hand with tapering fingers.

The following interesting illustration is given by Dr. Wilks, of Guy's Hospital, in the London *Lancet* for January:

"The fact that the traces of a past illness may be found on the nails is probably known to many in the profession, as it is one with which I have been well acquainted for many years. Constantly meeting, however, with medical men to whom it is unknown, I take the liberty of bringing the subject before their attention, hoping that the experienced will pardon the intrusion for the sake of those to whom the fact is novel.

* * * * *

"My own distinct knowledge of the fact that the nails become altered in disease was obtained many years ago, when a non-professional gentleman observed the circumstance for himself, and was so much interested in it that he referred the matter to a distinguished natural philosopher. It was after a severe attack of diarrhoea, which caused almost as much prostration as Asiatic cholera, that he discovered a white line or depression at the roots of the nails. Having formed a pretty accurate idea of their rate of growth, he was convinced that the markings corresponded with the date of the illness. I may state that these marks are caused by a slight furrow, which is found more especially on the middle of the nail, and more distinct on that of the thumb. They point, no doubt, to a sudden partial arrest of the nutritive process during the time of the illness, and hereiu lies the interest of the observation.

* * * * *

"Physiologists say that the thumb nail grows its whole length twice a year; and thus it follows that if the furrow be found in the middle of the nail, the illness occurred three months before. This fact may then serve for a limited period, like 'foot-prints on the sands of time,' as some additional proof of a previous serious illness. For instance, a patient with cardiac disorder stated that he had had an illness three months before, and on his nails some transverse markings were found; also another, suffering from phthisis, said that his illness resulted from an inflammation of the lungs, occurring a few weeks previously; and on his nails, also, some indistinct lines were discovered. That a severe diarrhoea could produce such a cessation of the nutritive process as to exhibit its effects on the nails, is a fact for which I should have been unprepared, had it not been apparent to the eye. It is one, however, of extreme interest."

to softening of the brain, is, by Dr. Hubbell, thought to be indicated by the *annus senilis*, if it occurs before old age.

To bring out and bring together such facts and indications of lesser or greater import was the object of making an offer of a small prize—for the best “Essay on the Physical Indications of Longevity.”

Two offered were much in advance of either of the others, and as there was a difference of opinion as to which was the better, both were accepted and are given to the Public, in the preceding pages.

If other observers can do better, let them take advantage of the offer, yet open. Though the two prizes of \$500 Policies were awarded, it will be a pleasure and a profit to award others whenever deserved.

It is particularly desirable to have what might be called the physiognomy of longevity and of incipient disease noticed and treated upon. By physiognomy is not meant the indications observable in the face merely, but in the entire exterior of man, his extremities as well as his trunk; and by longevity* is meant not the capability of living to old age, but to any age. It used to be

* From the January *Lancet* the following exceedingly interesting extract is taken, exactly sustaining the points made in this book :

* * * * *

“It is true that a large number of persons are destroyed by accidents from without, and so die relatively young; but it is not true that all persons who die nominally young are ‘stopped machines.’ On the contrary, a large proportion of these have lived their life, and their ages are to be counted by the physiologist, not according to solar revolutions, but according to *germinal capacities*, which vary for us all. * * * If men did not all inherit disease, we should only have to put some man under a glass case to make him immortal. But every man is his own disease; he may be prevented from developing its retrograde forms, as a phthisical girl may die of a blow before she has hatched a tubercle; or, again, its development may be hastened, as she would hasten it by wearing thin shoes, or it may be greatly retarded by medical means; but these two classes of ‘influences from without,’ change the rate, but not the na-

thought, and has even been said recently, that science should not degrade herself by attention to pecuniary matters; that "hoary error" is passing away, and it is found that science is most developed and most exalted when researches are stimulated by rewards not altogether posthumous and uncertain. It is also for the advantage of genuine science to have all its truths tested in the market where their applications, accurately measured by their

ture of the process. 'Liability to disease' simply means, therefore, either the disease (that is, the *mode* of life) itself, or merely means liability to accident. I do not think that I ever underrated the action of circumstance. I stated in my former letter that 'life' was not the organism alone, nor the medium alone, but the result of these two factors. The organism is, however, by far the more complex of the two factors, and the less modifiable; the medium is simpler, and very manageable. As civilization advances, therefore, the former must go for more and the latter for less; and indeed in our present time, even in an hospital so successful as St. George's, no pathologist need languish for want of examples of bodily decay. For in many of the instances of destruction from without which Dr. Dickinson enumerates, the external cause acts rather by finding out the direction of least resistance in the individual body, as the tap of a knife cleaves a crystal, than by rending parts which were previously sound. I grant that we all have to stand up against good bowling; some of us do better, some worse; few of us carry our bats out, and I will admit that perhaps none of us die of ourselves alone. Nature, like an active cricketer, soon detects the weakness in our defence. I hardly need be obliged to say that the organism being constant, and the medium variable, the length of life will vary with the latter; but I do wish to urge the correlative but less familiar truth, that if the medium be constant (which it is tending more and more to become), yet single organisms are largely variable as yet, and can have no common term of life until uniform circumstances have moulded us for ages.

"We are all liable to interferences. 'A Punch's show, a chimney-sweep, a Newfoundland dog, or a drunken man coming round the corner sharp, may do it; there's no denying of it.' But if all the long phalanx of babies now issuing into life, as I run my pen across the sheet, were to enter upon identical conditions, their hopes of life could be no more equal than the quality of their brains; for a peculiar death is bound up with, and is from the beginning a part of, every peculiar life, and interference where it occurs, acts oftener by hastening a foregone conclusion than by setting up new and irregular deviations. I think that we are all tempted at the post-mortem table to look upon man as a congeries of separable organs rather than as a whole—as one complex structure and one complex function.

I am, sir, your obedient servant,

Leeds, (England,) December, 1868.

T. CLIFFORD ALLBUTT."

moneyed value, soon expose the pretentious, who under the old idea, thrust themselves, wigged and robed, into the highest places.

At least this Company, while as individuals deeply interested in these matters theoretically and as merely scientific, as a Company looks upon them in a purely practical business aspect, and is not only anxious to obtain, but willing to purchase any idea that will lead to a foresight of disease, or to a sufficiently discerning forecast of probable short life to enable its officers to avoid losses that can be prevented. Its success thus far in making relatively fewer losses than any other company has done, there being none the last year on those insured during that year, vindicates the belief that still better results can be achieved.

The interests of all concerned make it desirable that there should be no unnecessary losses. Those which are *necessary* there is an *advantage in making*. Hence, lives are classed, attracting the long, and repelling the short-lived, unless received at paying premiums, and therefore, good risks. All the employees, by bonuses and commissions, as well as the Company and the insured, receive according to the *quality* as well as the quantity of business done. It is evident therefore, that all the tendencies of the Company are toward obtaining the best lives and making the fewest losses, toward the security and success of the Company, toward the best ultimate compensation of its employees, toward the truest welfare of the assured, as well as toward the highest theoretical and practical development of one of the best causes that assist in the promotion of human welfare.

In Conclusion,

We respectfully submit that we have made out our case, and claim a verdict in our favor. We believe that we have demonstrated,

1st, That a *life-time* is an essential characteristic of life.

2d, That the lifetime varies, not only in the different species of living things, but in families, and even in individuals, whose natural

or germinal capacity in each case differs from that of other individuals, as much in regard to their natural lifetime as in other respects.

3d, That although this lifetime may be cut short, it cannot be materially extended beyond its natural length.

4th, That the family history, and all the personal indications of the individual, furnish data by which to judge his capacity for living; in other words, of the probable number of years that he *can* and that a large number of similar persons *will* average to live.

5th, That persons having probably similar lifetimes should be *thoroughly* classed, those probably longer-lived having no part nor lot with the naturally shorter-lived, nor *vice versa*; while also those of similar probable lifetimes who pay different kinds of premiums should be sub-classed accordingly, or else capital has none of its due.

6th, That, therefore, persons should have their premiums, the surrender value of their policies, and the reserves to be kept against them computed, not upon the average length of all lives, nor by the losses by death of all classes of persons taken together, but upon the average probable lifetimes of *similar persons*.

7th, That the economizing and "laying up" of small sums regularly and frequently, with the effect of compound interest, constitute the sole legerdemain or mystery of life insurance, the effects of these causes, especially of compound interest, being surprisingly large.

8th, That all the losses, expenses, etc., of life insurance can, and should be, sustained by the compound interest alone of premiums paid, and that, therefore, it is a *fundamental principle of life insurance, as practiced by the AMERICAN POPULAR*, working under the *AMERICAN SYSTEM*, that interest shall cover all the cost of insurance to all the insured.

9th, That, therefore, no person thus insured should or will lose anything of his real labor earnings, or what he actually pays, but

that every person should and may, at any time, receive a paid-up policy not less than equal to all premiums paid; so that, sooner or later, a person, or his heirs, will receive all that he pays, besides being insured meantime.

(As the interest received by the company, through the legitimate payment for the use of money loaned, yet being paid by the general public that hires the funds, and also being in part the result of public laws, and at least more easily earned than if obtained by direct labor, there appears to be a fairness in using it for a community purpose; certainly the above arrangement affords an equity superior to the old plan which, by more or less of forfeiture of premiums paid, transfers the direct labor of one to another without consideration, the essential of slavery, and contrary to all the equities of American ideas.)

10th, That such appropriate premiums should be paid in cash (not even in part in deceptive notes), that there will surely be a "return" made at or before the expectation of each class.

11th, That the "returns" should never, even in part, be made until the premiums, with all the interest earned on them, equal the present assurance, as each person should cover that entirely before it is increased.

12th, That the premium should never be made so large that any part can with propriety be returned within a few years, since the expense of collecting it will essentially diminish the return.

13th, That those who enter a young company should not pay any more than those who are insured in its later years, since there is no more advantage received by the former than by the latter.

14th, That, therefore, an insurance company should always be organized upon the stock plan; the capital for establishing and expanding the company being thus economically collected and invested, and its compensation being obtained from interest earned by premiums, no additional money need be taken from the assured

to establish the company, but the earliest and the latest need only pay equally what it legitimately costs to insure them.

15th, That this plan alone is just and equitable to all the assured, and alone gives security to a company, as well as to the long-lived their rights.

16th, That by the new plan all reasonable objections to having all persons insure are removed. Many long-lived persons thought, and truly, that it was best for them to insure, even at the cost of the old plan, and many families of the naturally long-lived, who have been cut off by a contingency, have been blessed by the provision secured by insurance. Now all may without regret avail themselves of the equities of the new plan.

17th, That the average results of insurance to the long-lived under the new plan, even allowing them to defray the losses by death in their class, will be greater than they will gain by the use of their money in any other way, since the average of the people do not earn as much from their investments as compound interest alone will produce. Industry, economy, and compound interest will usually make the long-lived rich. Insurance comes in to secure a certainty for the family in case of the contingency of death, while, if it does not occur, compound interest will surprisingly increase the insurance premiums. The cost to the long-lived, when thoroughly elapsed, of insuring against the contingency of early death will be but a trifle of their compound interest.

18th, That we are right in first making insurance so correct and just that no mystification is necessary, and then making it so plain that all may profit by it understandingly, being able to give a reason for what they do, and therefore not to be disappointed; will not the American system thus—by substituting satisfaction for dissatisfaction—greatly promote the cause of insurance?

Nearly all these points were illustrated by the case of a gentle-

man, Mr. K., who came into the office of the American Popular to inquire about the advantage to him of our plan.

He was fifty-three, sound, never sick, his ancestors averaged to live to seventy-five, one dying (accidentally) young, reduced the average. He had been insured sixteen years on a half-note premium; the cash part over two hundred dollars per year. He had thought if he should live as long as his ancestors, he would, with interest, pay a very large amount, notwithstanding the heavy "note dividend" he was receiving. He had called at the office of the company where he was insured to learn what "paid-up policy," or what "surrender value" he could have, and was very much surprised to be told that the latter was only seven hundred and fifty dollars. He had blamed the company merely, not knowing that the fault was inherent in the old plan.

By it, at thirty-seven, he was considered as having a probability of living to sixty-five, and at fifty-three of living until seventy, five years longer than was computed for him at thirty-seven. Hence, as it is computed that he has five more premiums to pay, it is by the same rule computed that he is to be allowed a "surrender value" for five less than he has actually paid. Besides, he was classed with all the others insured in the company, and his money helped pay many losses of those who never had any chance of long life; they also paid "half-note," and had the "note dividends," and were, therefore, by so much more, insured for less than it was worth; which he also assisted in making good. No one must expect to assist in supporting too many families and also have much left for his own.

This man should have been assured according to the American system, if it had been then devised. To wit: He was born with a probable lifetime of not less than seventy-five years; his record and personal indications plainly show that he is entitled to this allowance; he should have been classed with none who could not

live at least until seventy, so as to share *only* the losses caused by the contingent deaths of those *similar* to himself; he should have paid all cash, and made sure that those insured with him did the same, so as to pay their proportion of their own losses; then his "surrender value" should have been computed upon the number of premiums that he had paid, and the few losses that had occurred in his class, which would have yielded to him an abundant satisfaction; at least he came dissatisfied, he went satisfied with insurance.

We believe in insurance as a great good. We also believe that our principles and method are decided improvements, and of great public utility. Hence we court publicity. We fear not the most unmitigated competition. We expect it—we ask it. Let our points be most closely scrutinized—so much the better for them.

We fear only misrepresentation and falsehood. We therefore challenge the discussion of each and all our points before the public, then let it, unbiassed, judge which plan, security being considered, is the best for all classes, but especially for the probably long-lived. Meantime let persons of good habits, health, vocation, etc., and whose ancestry average over seventy, consider the matter in the light of their own interests.*

* Persons can be insured by correspondence. It is done daily. The best lives from every part of the country are improving their opportunities to make inquiries personally and by letter. We especially desire to have every one who has had any ancestor (parent or grandparent) reach the age of 90 or 100 years, or whose ancestry on both sides has averaged 75 years, send to us his or her name, as it will be to our mutual benefit.

APPENDIX A.

INSURANCE—ASSURANCE.

INTRODUCTORY.

AN immense business in Life Insurance has grown up. It is every day increasing with such rapidity that in a few years few men will be found uninsured ; nor will the public be willing to allow any of its members on whom others are dependent, to neglect the use of this best of all human inventions.

It is usually thought to be abstruse, and very incomprehensible. It has been involved and mystified apparently to impress the public with the idea, that great abilities are necessary to understand and operate Life Insurance business and that therefore it should pay large salaries for the services rendered by its managers.

The subject is in fact easily understood if plainly presented. Its problems can be solved by an ordinary student. Even a boy with his slate and pencil can in any hour of leisure cipher out precisely what Life Insurance is, what it will be worth to him, what kind he should have, and whether the officers of the company he uses treat, or promise to treat, him fairly. At least, the method can be explained to any person's apprehension, "if he does not shrink from the attempt to understand the illustrations, through an idle fear that the subject is beyond his capacity."

The object of this article is to place this interesting and valuable subject in its right light, to clear away the absurd profoundness that is supposed to necessarily envelop this in fact easily comprehensible Institution, and to present its beauty and utility in so plain a light

that all may be led to admire the former and to profit by the latter.

Marine, Fire, and Life Insurance.*

If of a hundred vessels one each year is lost, it is evident that there is "one chance in a hundred," or as it is expressed, one per cent. chance or risk, that every vessel that sails, with its contents, will be lost.


If out of every hundred buildings in the land, one per year is burned, there is also one per cent. chance or risk that each building will be burned.

A person or company could then with safety say to all those who own vessels or buildings or have property in them: "If you will give one dollar for every hundred dollars' worth that are at risk, if they are lost or burned or injured the value shall be made good to the owner."

* The sum payable in case of loss is called the *Assurance* or the *Risk*; the latter also is applied to the property or person, or to the proportion of its value risked.

The written contract expressing the conditions is called a Policy. The party (a person or company) that agrees to pay the Assurance is said to write the policy, and is called an *Underwriter*. The party to whom the Assurance is to be paid is called the *Assured*; that upon the loss of which the payment of the Assurance is conditioned is called the *Insured*; the act of doing the business is called *Insurance*; or, in brief, Insurance is the engaging to make good any loss in consideration of a specified payment therefor.

** The above use and distinctions of terms is the best. Sometimes the words Insurance and Assurance are used in the same sense—generally in England the former is applied to property in general, and the latter to life risks.

 It is also understood that in doing Insurance business, not merely one, but many risks are taken, so that what is lost on one is made up by what is not lost on the others; to stake money on a single risk would not be insuring but betting—or gambling. The greater the number of risks correctly taken the better the business and the more uniform will be its results.

But as it would cost something to do the business, something (called loading) more than the dollar, or one per cent., (called *net* premium ; intended to cover losses only) must be charged in order to cover the entire cost (gross premium) of losses and other expenses.

Comparative Risks.

In Marine and Fire, the amount assured upon each risk must be less than its value, or the owner might be tempted to destroy the property. Life Assurance may be large, but not in favor of any one who will be tempted to destroy the Insured.

The per cent. of the Premium to the value of the risk, or to the Assurance, should vary as the risks vary. A. 1. vessels should be assured at a less per cent. premium to their value than should be paid for an inferior vessel. A farm house should certainly be insured at a less rate than a carpenter's shop. A man who will probably live to be very old should be insured more favorably than one who cannot live as long.

A new vessel is more likely to be staunch and 'weather' a gale than an old one originally no better built—A house that is new or young, will perhaps be just as likely to burn as an old one.

Classification Essential to all Insurance.

There is therefore a difference in the basis for insuring Life, Marine, and Fire risks. In the latter only the construction of the building, the business done in it and its locality, are to be considered, while in considering marine risks the age of the vessel must also be considered. In case of life risks the problem is still more complex and important—and there are reasons for a very great variation of the per cent. of Life Insurance premiums.

Is it not then quite evident that a proper classification of risks must be the foundation of all successful insurance? Its cost must vary according to the degree of risk. If all risks are insured together and pay equal per cent. premiums is it not evident that great unfairness will be wrought? In fact all other points of insurance have been well said to be insignificant compared to the thorough classing of the risks, which is still more important in Life than it is in Fire and Marine insurance, because life usually continues for many years.

Marine and Fire risks are taken only for a year or two, or for a shorter period, as a voyage, &c. A ship may also wear out and never be lost, or a house may decay without burning—indeed, most vessels and houses do wear out or decay. Underwriters on marine and fire risks therefore may have very few or very many losses in proportion to those calculated, or even none at all. The same would be true of life risks if taken for equally short periods. Usually Life risks are taken for many years, or, which is still better, for life. In the latter case the payment of the assurance is certain.

There is really no rule by which any sure premium can be made on Marine or Fire risks, as the number of losses of each kind differ very much at different times. When the prices of goods are falling it is noticed that fires are more numerous than when prices are rising. The more extended in space and time the business done the more uniform will be its working. By a judicious selection of risks some Insurance companies will be successful, while others having the same premiums will fail on account of not properly classing risks, and therefore taking them at less than they are worth. Yet, in the best managed Fire and Marine Companies, a great deal of the incalculable element called luck or fortune, must prevail.

Under the most favorable circumstances only can there be an approach to a good calculation of Fire and Marine risks.

APPENDIX A—2.

THEORY AND PRACTICE OF LIFE INSURANCE.

But it may be asked : If in anything so uncertain as life, its liability to decease can be calculated or predicated with any such degree of certainty that it will be practical and reliable ?

There is a way. Most simply, beautifully and surprisingly is it exhibited. It seems as if the Creator in establishing the laws of life, had intended in mercy to man that he should certainly invent and apply Insurance to the amelioration of anxieties at once the most annoying, yet most creditable to his heart.

A Supposition.

Before we consider the Laws of Life and their application to classing lives and determining premiums, and show how reliable it is, and how easily learned and used, it will be best to make a supposition, and show its applications. Incorrect in regard to precise figures it does not lead into any erroneous conclusions, while it gives the essential advantage of easily handled round numbers in illustrating the principles of Life Insurance, and it will serve to make them remarkably simple and easily understood. For the time being, then, let our suppositions receive full confidence as if correct ; we will afterwards show what is correct—meantime no false impression will be made.

INSURANCE FOR ONE YEAR.

Suppose that it is a positive certainty that one, neither more nor less, in a hundred persons 25 years of age, will die within the year ; which one is uncertain—they

are alike in all that respects probability of living. The hundred agree together that the heirs of the one who does die shall receive \$1,000. If there is no other expense, how much must each pay? Evidently \$10.

This premium might be paid when the decease shall occur, if it would always be promptly paid then; but as it will not be, it is better to have it paid in advance and deposited at interest.

At the end of six months one of the insured dies, his heirs receive \$1,000. At the end of the year, there remains in the treasury \$35, the interest made during the first six months. That is shared in the proportion of thirty-five cents each to the 99, and to the heirs of the deceased, and the whole business is closed up.

This is an entire history of a successful Life Insurance Company, and exhibits all the essential or fundamental principles of Life Insurance. If the company should extend its working through a score, a hundred, or a thousand years, no additional principle could be used. Do not fear that because it is so easily understood the whole has not been presented. There is nothing in all the various forms of correct Life Insurance that cannot be reduced to the elementary principles just illustrated, nor is there anything in Life Insurance more difficult to understand than what has already been shown. Let us then notice what points have been shown.

Important Points.

1st. It must be determined how many deaths per hundred persons will occur each year, for,

2d. The premiums must be determined primarily by the number of deaths per year, at each age. If two deaths had occurred in the hundred, \$20 each must

have been paid, in order that the losses should be covered. If the payments are made in advance,

3d. There should be a surplus from which a return can be made.

Since we cannot know on what day the parties will die, the premium can never be exactly adjusted. It is evident that the amount of money returned will depend upon the number of losses and the interest earned, for if no loss at all had occurred there would have been \$10.70 to return if 7 per cent. had been earned as interest, or \$10, if no interest at all had been earned.

Expenses cause Loading.

But some will say that expense is a necessary element of Life Insurance. Though not theoretically essential, it is one of some moment. In fact, we should find that it is often very extravagant. Often much is taken for the support of officers, or paid uselessly for the gratification of their vanity, that should be returned to the assured. Suppose the expenses not to exceed one-fourth or twenty-five per cent. of the premium, or \$2.50 on \$10.00, those figures added give \$12.50 for the "loaded" or gross premium, of which \$10 is the net. If at the end of the year the whole of the loading is not needed for expenses, the balance with its interest can be returned to each, added to the thirty-five cents interest returned from net premium.

Surplus always to be Provided.

It is evident that sound principles of Life Insurance require that the losses and expenses should be calculated, so as to be as large certainly as the results will show were needed, and so that the interest on premiums will always give a return. It is also evident that

the cost of insurance and its premiums will be less, and returns larger,

- | | |
|-------------------------------------|---------|
| 1st. The fewer the <i>LOSSES</i> | } Made. |
| 2d. The smaller the <i>Expenses</i> | |
| 3d. The larger the <i>Interest</i> | |

It is also evident that *losses* at best will cost very much more than the other expenses, and are therefore the *great practical point* to be watched in Life Insurance.

Demand for Watchfulness.

It is also evident that losses cannot be entirely avoided, the very object of Insurance being to provide for them. But it is equally evident that the number of them and consequently the lasting prosperity of a Company will depend upon the ability, care, and discrimination used in accepting or "passing" cases. At the very entrance lies the danger. If an improper person is passed, the loss may be considered as already made. As in a besieged city, the gate-keepers must closely scan and only with the most considerate judgment, based upon the most positive testimony, admit any one ; or as the guardians of a port, in a time of danger, must not pass any vessel if there is the most remote jeopardy, nor without she is thoroughly examined and indubitably found to have a clean bill of health ; so must the watching of the entrance to an Insurance Company be ever vigilant ; from its supreme importance, the highest order of acumen and specific acquirements are essential in the guardians ; ordinary business tact and energy is all-sufficient for getting business, but scientific skill obtainable only by capacity, developed by intelligence, and made apt by much practice and experience, is necessary for determining the risks to be taken.

Classing a Safeguard.

This again shows conclusively the great relative

value of a thorough classing of risks taken, since in no other way is it possible to be sure that the premium is adjusted to the risk—while by classing the risks in tribes according to the risk of each, and causing each class to pay its cost and share its own returns, as it were making each class a distinct company in respect to losses, the best classes will have but few losses to pay, can therefore be insured for small premiums, and can even then realize large returns, while it will be certain that the inferior classes whose premiums should be and are thus made, larger, will not involve the Company in a ruin that it is evident must certainly come, if more losses occur than are provided for by the premiums.

INSURANCE FOR MORE THAN ONE YEAR.

But most persons will say, "We wish to insure for more than one year." That makes no difference, no new principles are involved. There is the cost of the insurance of each year to be paid, which will depend upon three things, *LOSSES*, *expenses*, and *interest*, exactly as in case of one year Term Life Insurance, only interest comes in to play a part more and more influential the longer the insurance continues.

If Fire Insurance is extended from year to year, the premium is repeated ; but in Life Insurance, as in Marine Insurance, advancing years increase each risk, so that the cost must increase each year. But it will be inconvenient to have the premiums increasing each year. It is much better to have them uniform. For this provision can be made.

Insurance for Two Years.

Suppose, now, that the one hundred agree to insure for two years, and that the second year, one out of the ninety-nine, instead of one in a hundred, as in the first year, dies—\$10 each paid by the ninety-nine the second year would give a result of only \$990, instead of \$1,000, as required if the hundred agreed to insure for two years and pay \$1,000 to the heirs of each who died. If both the premiums of the two years were paid in advance, \$20 from each would not be required, because the interest earned during the first year would help to reduce the premiums ; but as the premiums are to be paid annually, if only \$10 is paid the first year, the cost or premium to be paid by each of the ninety-nine the second year will be a little more than \$10.10 ; now if it is desirable that the premium of each year shall be the same, let that sum be added to the \$10 premium of the year before, making \$20.10 for the premium of both years, which divided gives \$10.05 as the equal premium of each year. But as one five cents is paid a year before it can be needed, its interest must be taken into consideration ; for though interest for so short a time, and on so small a sum is of little consequence, in extended periods its effect is very great.

Important Fact.

The fact exhibited is this : a person pays more than is necessary to defray the cost of the first year, in order that the excess with its interest may assist in paying the cost of the second year, and thereby reduce the premium of that year. This fact is of little consequence during so short a period ; but the premiums for extended periods, or for life, can be made by the like simple process that applies in case of two years. The effect of

equal premiums is very valuable, since it causes a large part, and, if proper arrangements are made, it will provide for all of the cost of the later years to be paid by interest alone, the easiest earned of all income.

WHOLE LIFE METHOD.*

For computing Whole-Life premiums a more convenient form of the same idea may be used, viz: If we know what proportion of persons of each age die within the year, it will be easy to reckon how many years (or what is called their "Expectation" of life)—those living at each age will average to live beyond that age, viz., add the years that all will live beyond the specified age, and divide the sum by the number of persons. Add the age and "Expectation" and the "Expected Longevity" will be shown. Suppose a small number, seven persons, 25 years of age live, one 10—one 20—one 30—one 40—one 50—one 60, one 70—in all 280 years more. This sum divided by 7, their number, gives an average or "Expectation" of 40 years beyond 25 lived by the seven; which added to 25, gives 65 as their "Expected Longevity."

* It is expedient to repeat here, that the methods mentioned in the text are not intended to be technically expressed nor exactly correct, but are, as was stated, suppositions for the purpose of illustrating sufficiently well for ordinary comprehension, the main points. The precise forms by which premiums are made in the different kinds of payments, would be either incomprehensible formula, or would involve long and tedious explanations not at all necessary for the ordinary reader to notice. We are writing to interest him, and not to instruct technically a pupil in the practical work of insurance. The sum of money which at simple interest during the "expectation" of any age will equal the assurance of that age, is near enough to the net premium of that age for all the practical purposes of explanation of principles.

Premiums Easily Computed.

In case of fire and marine insurance, the property insured may never be destroyed, and is not insured against decay, but a life is certain to de cease, and if insured for life its assurance must at some time be paid. Provision must therefore be made, not only to have the early losses by death paid, but also to have all the assurances covered when they shall occur. If no such provision should be made, how shall the money be obtained to pay the heirs of those who de cease late in life? The premiums in case of whole-life policies must be such, therefore, that not only early losses may be covered, but a "reserve" each year obtained, which, with interest, will equal the mature assurances.

If the average length of life, or the Expectation from each age and the average per cent. number that die each year are known, it will be easy to compute the premiums necessary for a Whole-Life policy, viz., one the assurance of which is to be paid whenever the insured shall de cease.

In case of the seven, each must pay such a premium each year, as will with interest at the rate used, equal \$1,000 in 40 years (Expectation), since they will average to pay 40 premiums, or 280 in all, for though one will pay but ten another will pay seventy. But it must not be known nor conjectured in advance which of the seven cannot live more than ten, nor which may live seventy; if it is, they cannot, properly speaking, be called insured; for, does not *insurance correctly speaking imply equality of risk and of all conditions?*

Again is seen the prime importance of thoroughly classing risks, since in no other way can those who are equal risks be insured together according to the legitimate meaning and spirit of the expression, insurance.

DIFFERENT KINDS OF PAYMENT OF PREMIUMS.

Again, some persons will say that they do not wish to pay each year of a long life, but prefer to pay all that is necessary by a single, a five, a ten, or a fifteen annual payment premium for the corresponding number of years, and then have their policy "paid up," viz. : on which there are no more premiums to pay. No new principle is required for these cases. All that is necessary is to have such an amount of premium paid, no matter in what form, as will with interest answer the requirement for the assurance. There is a yearly cost for insurance, both by losses by death and by current expenses, and the excess paid with its interest provides a reserve for future payments of losses and for a return.

Effect of Ten Payments.

For example, if a person for each of 10 successive years pays \$40 for \$1,000 assurance, he pays \$10 say yearly—for yearly cost of insurance, and \$30 yearly, or in all \$300, which, with another \$100 say, from interest, equal \$400 in all, to provide for the future. Let it be noticed that the interest on this is \$28.00 ; that he yearly pays from that time. Perhaps he says and thinks that he is through with payments, for most people do not think of interest as paid, when they have never handled it. True, it is more easily earned than it would be by hard labor, yet it is his and yearly paid by him just as much as if he should take it yearly from his pocket. He should so consider it, and look after it, if he would understand his rights or his *interests*.

What, then, is the effect of paying large single, 5, 10, 15, &c., payment premiums according to the old plan ?

A person in one or a few years provides for making his after-payments from the *interest* of what he has already paid and that is all.

But he is entitled to something more. A person who pays \$400 single premium for \$1,000 assurance payable at his death, is at risk for only \$600 at most, because if he should die during the first year, the Company would lose only \$600 more than he paid, hence \$600 is the risk the Company has on him ; while he who pays \$30 annually for \$1,000 is at risk to the company for \$970 during the first year. If they are insured together, viz., in the same class, and the former dies during the year, the latter helps pay only \$600, while if the latter dies during the year the former helps pay \$970. Is this right ? They do not combine similar conditions, viz., similar liability to death, and similar payments of premium. *They are not equal risks, and it is not fair that they should be insured together.*

It would be found that the single premium of \$400 is less in proportion to \$1,000 than \$30 annually is; that difference partly offsets the less risk.

Important Ideas.

Properly speaking, a person is insured only for the excess of his assurance above his premiums with their interest. Neither of the above are properly speaking insured for \$1,000, but the former for only \$600 and the latter for \$970 during the first year, and each are insured for less the second year. For though they will at decease receive \$1,000, a part of it they paid either directly or by interest also. Again, it is calculated

that each is at some risk until his "expectation;" it would be so if only the low per cent. rates of interest upon which the premiums are computed should be obtainable. But practically, high rates of compound interest are obtained, which cause the risk of the former to be covered many years sooner than annual premiums will do it. For example, \$400 at compound interest at 7 per cent. will sooner equal \$1,000 than the corresponding annual premium will, so that it is evident that the person who pays the single or other large kind of payment covers his risk sooner than one who pays smaller premiums. Suppose one covers his in 16 years, and the other *not* under 26 years, is there not a great difference between the two risks? Of course there must be more losses to pay in 26 years than there are in 16 years, and if a person has covered his risk in 16 years and dies, the company loses nothing, but if he does not cover it until 10 years more have passed away, there is so much the more risk that the Company will lose by him.

Persons Making large Payments should be Classed.

Since those who pay large premiums are at both a less risk at first, and cover it earlier than those who pay small premiums, it is evident that classing should be thorough, not only in regard to the probabilities of living, which much affect the risks, but the *risks should also be sub-classed* according to the *kind of payment*, as it also affects both the amount and duration of the risk. The sub-classing certainly requires no skill, since it will be done by the parties themselves in the very act of selecting the kind of premium they will pay. All that is needed is the arrangement for sub-classes, for not having which there can be no excuse. The most evident justice demands that the American

system should in this method of sub-classing supersede the old, European, gregarious plan. To class according merely to age and health is evidently to leave the work half done.

If a person cannot be classed in accordance with the payment that he wishes to make, he should make the annual payment. The mere convenience to him of paying larger premiums does not equal what it costs him. He can also attain all the convenience he seeks by yearly depositing in a Savings Bank the difference between an annual payment and the one he would like to pay, and at the end of the period during which he proposes to pay, let him have his policy made into a "paid-up;" the amount necessary to make it so he can obtain from his Savings Bank, and have something left; while, if he should die meantime, his heirs would *get the assurance* from the Company, and *from the Bank* what had been *there deposited*. Or the party can go where he will be properly classed, which is the best way.

If a man is properly classed, and pays a larger premium than the "annual for life," he does for the first years pay more than it costs to insure him. The American Popular has therefore allowed the "Best Class" of lives the privilege of paying at an advanced age from their "rated" age, paying an amount or deposit equal to ten payment premiums. In which case it allows a paid-up policy at the end of ten years, or other specified period, and if decease occurs meantime, refunds, with the assurance, the difference between the "rated" necessary yearly premium and the amount actually paid. Thus the extra amount paid is treated as a deposit during the specified period. A person can himself take it up at any time; can use it to pay annual premiums, or if he allows it to remain it will give a paid-up policy at the specified period. He can also make such a deposit

that the interest alone will pay his assurance, and after a period also secure a paid-up policy ; when the deposit can be withdrawn. This last-mentioned is for the long-lived who have the means, or who wish to borrow them, of extraordinary value.*

* See a document entitled "Longevity, Economy, Compound Interest," recently published by the American Popular Life Ins. Co. It contains propositions that the probably long-lived will be pleased to read.

APPENDIX A—3.

ENDOWMENT AND ITS COMBINATIONS.

1. SIMPLE ENDOWMENT.

THUS far we have considered cases in which money is assured to be paid when a person dies.

We will now consider the case in which it is assured to be paid if the person insured is living at a given time.

This assurance of money after a given number of years, ten, fifteen, &c., or when the insured reaches a certain age, is called Endowment. Commonly, however, this expression is applied to a double policy, or assurance of which Endowment proper constitutes but one part, as we will hereafter explain.* Simple Endowment is just what we have stated, and nothing more ; and if the reader will suspend his impressions, if he has had any on this topic, we promise to fully explain the whole matter satisfactorily.

The principle upon which the premium is to be computed, is the same as in previous cases, except that we then based our premiums upon the number dying in the course of the year, and we must now base them upon the number living at the end of the year ; for if we know that one out of one hundred persons 25 years of age will die during the year, of course 99 will live.

If, now, the proposition is, to pay all those of the hundred who are living at the close of the year, \$1,000 each, \$99,000 would be required. To pay this, if interest is not considered, will require a premium of \$990 from each of the hundred.

But as the assurance money is not to be paid until the close of the year, the interest that will be received may be calculated when the premium is computed. That is to say, a sum which at interest during a year will produce \$990, will be the appropriate premium. But as it is uncertain what interest will be realized it will be better perhaps to have \$990 paid as premium, and any surplus arising from interest may be paid in addition to the assurance, or a small interest may be computed and the balance of interest obtained may be paid at the end of the year.

It is noticeable that the person who dies pays his \$990, yet gets nothing ; and if part of the probable interest had been allowed to reduce his premium, it would have been better for his heirs.

If a person has no one dependent on him for support, or to whom he cares to leave his property, this kind of policy is a good one.

It may be said that he does leave it to those for whom he cares, when he leaves it to his co-insured, for it may be said that they make each other heirs to the extent of the premiums paid.

This Endowment may be called a personal policy, since by it a person provides for himself only.

There must, however, be some expense attendant on making this policy and doing the business. If it be but 10 per cent. of the premiums, it will be in this case \$99 each, which added to the \$990, will make the sum of \$1,089 gross premiums to be paid by each person insured ; while each of the 99 who live through the year, will receive but \$1,000. If this is kept at interest at 7 per cent. during the year, and the interest, \$77, is paid to each of the 99, each will receive, \$1,077, against \$1,089 he paid in premium, besides interest accruing ;

that is, the man who lives loses the interest on his money, and \$12 besides.

Uses of Simple Endowment.

When, however, the simple endowment extends through several years, during which there will be many deaths, those who survive receive large increments from the premiums of those who de cease, and of course the premiums do not bear so large a ratio to the assurance.

There are, however, few persons in this country who desire to take out such policies ; yet they are exceedingly good for those who have present yearly means, and may not have them in advanced years, and have no persons dependent on them.

Thus the money paid in by two persons may after a certain period, support one of them handsomely when it would not support both. Both can live well while both can work ; now, if it cannot be decided which will probably survive, it is well for them to make each other heirs by means of a Simple Endowment Policy, and if several thus unite the results to the survivors will be very favorable.

A premium table for a pure Endowment is not found usually in the circulars of the companies, but may be read in the circular of the American Popular.

This is what is called the Tontine plan, from an Italian, who invented it. Forfeiture is a conspicuous feature, and as the Tontine was invented before the life plan, that feature was unfortunately transmitted. It was not apparently observed that the two plans were exactly opposite to each other, and that what was proper in one would not be in the other. Endowment takes from those who die to give to those who live ; Life Assurance takes from those who are fortunate to live

and gives to the heirs of those unfortunate in dying. One is a Personal, the other a Family policy.

All companies are every year little by little getting rid of the forfeiture in life plans ; it should be discarded altogether, as it has been by the American Popular. Forfeiture has an appropriate place only in Endowment.

2. COMBINED TERM LIFE AND ENDOWMENT.

This is what is usually called Endowment merely. It has indeed become the custom of the business to use this word incorrectly. Many persons, and indeed, most agents do not know that it is not properly thus called, nor that what is commonly called an Endowment policy is really *two policies in one*, but such is the fact. The premiums of both are embraced in one expression, but the conditions, or the assurances, are always expressed separately.

They might be taken out separately, just as well as together, from the same Company ; or one could be taken from one Company, and the other from another.

Two Conditions, Two Assurances.

The policy recites that in consideration of — dollars (both premiums in one sum) A. B., if living at a given time, shall receive \$1,000 (one Condition, viz., the Endowment Assurance), or if he decease before that time his heirs, &c., shall receive \$1,000 (the other Condition, or Life Assurance).

Observe that here are two distinct and exactly opposite policies in one, or upon one sheet of paper, the same as if the reading had been : In consideration of — dollars yearly paid by A, for a given time, he shall receive at that period \$1,000, and in consideration of — dollars annually paid by A, if he decease within a

given (the same) time his heirs shall receive \$1,000. The latter is a Term-life-policy, the other is an Endowment-policy, whether expressed on one piece of paper or on two, given by one company or by two, on one day or on two ; both together cannot properly be called an Endowment, for that is the name of one alone ; taken together they should be called a Combined Term-life and Endowment, and they have all the characteristics and all the expenses of both, while the assured can receive only the advantage of one, which condition no person can ever want.

Illustrations.

Now, we found that to insure a Life for \$1,000 for a year, according to our supposition, would cost \$10 each, to the 100 persons ; while to insure the Endowment of \$1,000 at the same period would cost \$990. These two premiums added, would make the sum of \$1,000 that each of the 100 must pay, in order to produce the needed \$100,000. For when the one dies, \$1,000 will be needed to pay his Term-Life-Assurance, and when the year is out, \$99,000 will be required to pay the Endowment of \$1,000 to each of the 99 living.

It is noticeable that while all the 100 pay the premiums of both kinds no one gets more than one kind of Assurance. Those who die get only the Life Assurance, and those who live get only the Endowment.

But something must be added to the net premium to cover the expenses of transacting business. Suppose the addition or loading to be as small as ten per cent., it will add just \$100, making the gross premium \$1,100, to get \$1,000 assurance at the end of the year.

But as the Endowment is not paid until the close of the year, if the interest at seven per cent. is also paid each of the 99 will receive \$1,070, against \$1,100 pre-

mium that he pays ; each pays out \$30 more than he receives.

The heirs of the one who dies receiving only \$1,000 lose \$100. Now we will suppose that each of the same 100 persons takes out a Life Policy for one year, at a net premium of \$10, or at a gross premium of \$12.50 ; and suppose that each, also, deposits in a Savings Bank paying 6 per cent. annual interest, the difference between \$12.50 the Life Premium and \$1,100 which was the gross premium of the combined Life and Endowment for one year, viz., suppose that each deposits in the Bank \$1,087.50.

At the close of the year the interest \$65.25 added to that deposit will amount to \$1,152.75.

This gives to each of the 99 persons living at the end of the year, \$52.75 above what he paid for insurance and what he deposited ; but as seen,

By taking the combined Life and Endowment, each of the 99 would lose \$30.

The difference in favor of taking a Life Policy and making a deposit is therefore \$82.75 to each of the 99.

The heirs of the one who dies would find the difference still greater.

They would draw from the Insurance Company \$1,000 and from the Bank at the end of the year \$1,152.75, receiving in all \$2,152.75, or \$1,052.76 more than the sum of what was paid and what was deposited.

As there would be a loss to them on the combined Policy of \$100, there would be a difference to them of \$1,152.75 in favor of a Life Policy and a deposit.

The difference in favor of a deposit is less, the longer the period of the combined "Life and Endowment Policy," for the longer the period the more the features of the Life Policy predominate, but there is

always a difference in favor of taking out a Life Policy and making a deposit, because the expenses upon it are less than those upon the same amount of Endowment premium. No person who understands the working of a "Combined Life and Endowment Policy" will ever obtain one. He will in fact be obliged under that head to pay for two policies while he can never receive the assurance of but one, for he cannot both live through the period and die within it.

A Combined Term-Life & Endowment Policy Unfavorable.

If the two were separately offered to any person he would not take either: Then why take both?

As the premium for a life policy is much smaller than that of a combined Term-life and Endowment a much larger life policy can be carried upon the same premium money. At 25 years of age the premium of a "combined" is about \$100 for \$1,000 payable in ten years or at decease, which would pay for more than \$5,000 life policy. "But," says a party, "I shall want the money in ten years if I live." Very well, would not the life policy be worth something then? Certainly, if in a good company, particularly if first-class and properly classed, it should be worth nearly \$1,000. This would be the case, at least, in the American Popular.

In fact, in one sense, all its life policies may be called endowments, since the value is always to be obtained.

Now, which will be the better for a first-class man, to take a combined policy and leave his heirs \$1,000, and if he lives ten years receive \$1,000; or to take a life policy at the same cost, but leave his heirs \$5,000 in case of decease, or living himself receive \$700 at the expiration of ten years? Every man with a family will approve the latter.

Again, when the Endowment period elapses, he is no longer insured, but he should be. He may be sick, when it will cost much, or if he is older, it will cost as much more as he is older, and in the end more than if he had been insured for life at the outset. If he had taken a life policy then he could have continued it or taken it up. It is always best to take out either a pure Endowment or a Life policy, but circumstances can never be so opposite and contradictory that a person can profitably take out both.

Why so-called Endowment is Popular.

The reason the so-called Endowment policies, viz., the "Combined Life and Endowment" have been so popular is—

1st. People generally have the idea that if they do not pay the premium on a Whole Life policy until their death, they will by forfeiture lose a part or all that has been paid. This used to be the case with such policies of all companies, and is now of some, but not of most; no such feature ought to be tolerated in any company in its Life policies, for it is as unnecessary as it is unjust.

2d. The idea also exists that a person cannot obtain anything himself from a Life policy, for it is only payable at his death. But in fact it has a value, which though very small during the first years, annually increases, and very rapidly after it begins to feel the full effect of compound interest, and if a party is honestly dealt with, and paid its real value, it will, especially after an extended period, yield more in proportion to the money paid in premiums than an Endowment will.

3d. The chief reason for the popularity of the combined Term-and-Endowment has doubtless been, that not being understood, while it was supposed that Life poli-

cies meant forfeiture, there was a charm in the idea held out, that by Endowment, a person's heirs would get the assurance if he died, and if he should live a certain time *he* would have the money himself, with a large per cent. of gain from forfeitures and other unnamed resources of profits. This illusion would not be likely to be dispelled by those whose advantage consists in its continuance. Endowments increase the assets of a company, and the commissions of agents. In many—indeed, most cases it is unfortunately the case that commissions are not so regulated that the best good of the assured and the pecuniary interest of the agent are coincident. This is an especial point with the American Popular. For example, agents usually in other companies get larger immediate commissions on endowments than they do on life policies, if they work for “flat commissions” as many do, and they of course will recommend what pays them best; but the compensation should be graded so that there would not be a temptation to solicit a person to a course that is against his interest.

The idea of providing for heirs if decease should occur, and for one's self if living until old age, is a good one, but it is now seen that the way to do it is not through a so-called Endowment.

It can be done best by either taking out a Whole-Life policy for the full amount of the money a person can spare, in a company that will pay the full cash value of a policy at any time, or by taking out a Term, or Whole-Life policy for such an amount as a person wishes to leave to his family in case of his decease, and making a deposit of the balance of the money that can be spared.

DEPOSITS.

Some companies—for example, the American Popular—allow deposits to be made to the same amount as

the assurance paid for ; which deposits the company cares for at less expense than any Savings Bank will. In this case a person can, with the premiums of his Life Policy, make such a deposit as will answer any future requirement. He can thus provide for making his policy a paid-up policy, at any time in the future, for having an income of any amount in his declining years, for having a child or other person receive a certain amount at a given time, or an income annually from date, or from any date in future. Thus, in connection, if necessary, with taking up the "value" of his Whole Life policy he can provide for any supposable contingency of life.

There can be nothing better than a Whole Life policy and a deposit allowed its entire increase by compound interest, and no one can be better provided for, than by them.

ANNUITY.

Annuity Assurance is the yearly payment of a sum of money to a person if living for a stipulated time, either a definite number of years, or during lifetime, upon consideration of a corresponding premium paid in advance. The premium may be paid at once or in a series of years. The payment of the Annuity may commence at once, or the payment of it may commence at a future time. This is done to allow the premiums to accumulate at interest, and thus increase the Annuity when it does commence.

An Annuity is computed on the same basis upon which a Life or Endowment premium is made. If the average number of years that several persons will live is known, it will be easy to compute what sum of money with the interest earned by it, will be sufficient to annually pay a given sum to the assured during that average

number of years ; the idea being that one will pay his premium and die soon ; another will pay and live on, receiving his annuity for years after the average age of both is past, thus one just balances the other. This is evidently a good arrangement for the long-lived, if a sufficient number of the shorter are willing to insure with them. But they will usually guess too well their probabilities. Hence most of the companies have given up making Annuity Policies, considering them usually a means of loss. The risk of having too many losses on annuities can only be avoided by a thorough classing of lives.

REVIEW.

We have now illustrated, upon the basis of our supposition, every kind of Insurance that can be taken out upon any person ;—for,

The money assured must be paid either at the death of a person, or at a specified time if he is alive, or in instalments, either before or after his death ; that is to say, Insurance upon any person must be either *Life*, *Endowment* or *Annuity*.

Annuity is however merely a series of Endowments, payable to a person during his life or to heirs after his death, so that there are really but two main kinds of Insurance on a person.

1st. Payable, at his decease. This should be called Family Insurance, since it usually is made for the benefit of the family, and it should be cared for and sustained by those who are to be benefited, and not solely by the one insured.

2d. Payable at a given time if the person is living. It should be called Personal Insurance.

Of each kind there may be varieties, or they may be combined.

Life or Family insurance may be either for a given number of years, called a Life, or for the indefinite entire life, and called *Whole Life*.

Endowment may be simple or pure, nothing being paid to a person if he decease before its period, or it may be modified by having its premiums returned with or without interest—or a paid-up policy for the premiums paid may be given—if a party fails to pay before the period of payment, &c.

The Life, or *Family*, and Endowment, or *Personal*, may be combined ; or either, or both may be combined with the *Annuity*; viz.: the assurance of either of the former can be paid in instalments, or partly thus.

The combined Term-life and Endowment premiums are produced by adding the Term-life premium to the Endowment premium.

It will be in a great many instances, probably a large majority, best to have the assurance of a life policy paid to the heirs in instalments. The money will not be so likely to be badly invested or misspent.

Annuities are sometimes paid from date of making them, and then called *Immediate* ; or the instalments may commence at a time subsequent, when it is called *Deferred* or Endowment Annuity.

Different kinds of payments of premiums may be made on all these varieties of Policies, which are accordingly named single, five, ten, &c., payment.

Premiums may also be paid in cash, or in part note, or with a loan.

The Policy may also be forfeiture or non-forfeiture—entire, or after a certain time. Usually those called Non-forfeiture are so only after a time, and it is an error, if not a wrong to call them non-forfeiture.

All policies look to the accomplishment of something in the future, which, in all cases—Life, Endowment and Annuity—depends entirely upon the same simple, easily understood, and easily applied principles, that have been illustrated by means of our suppositions in the previous pages. It has been shown that three things must be assumed.

1st. The number of losses by death.

2d. The per cent. of expenses necessary.

3d. The per cent. of interest obtainable.

Upon these the premiums must be based in each case. Neither of them can be made with perfect certainty. Therefore, for security it is essential that the Interest should be assumed at a little lower per cent. than that which can probably be realized; the assumed Expenses should be a little larger than will probably be necessary; the assumed Losses should be a few more than will probably be realized.

If, then, from each of these sources there should be at the worst, only a small excess, or at the best, a large surplus, as soon as the full cost is ascertained, a return can be shared by those who have lived up to that time. The heirs of those who have died earlier cannot complain, since this course was necessary for their security, and they will receive more than their own money and its interest, which is all that they should ask.

APPENDIX A—4.

WHY, WHEN, AND HOW, SHOULD RETURNS BE MADE ?

YEARS ago, returns were not made at all. Afterwards they were made first in ten, then in five, then in three years—now most companies promise to make them every year, which appears absurd. The true principles are :

1st. Cost of insurance cannot be known when a person is insured,

2d. Security is of prime importance, therefore enough should be taken to more than cover the costs ; and,

3d. Returns should be made when the cost is ascertained.

If insurance is made for only one year, the cost can be ascertained at the end of it, and the returns determined. If insurance, however, is made for two years, upon the supposition that one of the insured will die each year, but that one, instead of dying in the first, lives on into the second year, and dies, could all the premiums received during the first year be returned at the end of it, because there was no apparent loss during that year ? Evidently not with safety.

In still more extended insurance the same idea would be still more forcible. The extended cost must be provided for, and until that cost is known, it will not be safe to make returns unless the premiums are unnecessarily large. If they are, reduce them at the beginning. It is certainly just as easy then to see that they are too large, as it is to observe it at the end of one year, when the return cannot be as large as the reduction of the premium might be, because a commis-

sion has been paid out on the whole premium taken. Has not the effect upon commissions something to do with the making of returns at the end, rather than a reduction of premium at the beginning, of the year ?!

For example, if a company should take a premium of \$100, and return \$34 at the end of the year, it would pay at least, say ten per cent. commission on the whole \$100, which would be \$3.40 on the \$34, or return part, and \$6.60 on the \$66. So that all that the company would retain would be \$56. But if the company had taken but \$66 at the beginning of the year, the assured would have saved at least the interest on the \$34, equal to \$2.38, while the company would have saved the difference payable in commission or \$3.40, less the interest, \$2.38 on \$34, leaving to the company \$57.02.

A reduction in advance can certainly be made with safety in some cases. Indeed, most Mutual companies have two tables, one "participation, or with profits," with much higher premiums than those of the "non-participation, or without profits." Those who insure by the latter premiums are not to receive any returns, but are supposed to pay a profit to those who have no reduction in premium, but enjoy a return. Now the reduced premiums must be high enough to pay the costs of the insured, or the safety of the company is endangered ; and if they are high enough what can possibly be the reason or propriety for making the others higher, when it must be apparent that the difference must all be returned minus commissions ? For example, if \$75 for \$5,000, is charged to the person who takes out a policy under the head of "no profits," it is supposed that \$75 will more than cover his cost. Now in the same company the "Mutual" party, viz. : he who shared (so-called) "profits," must pay \$100 on \$5,000.

Why that extra \$25 ? Does it cost more to insure him than it does another just like him ? That \$25 must then be so much above cost, and a return that should be made at the outset. Good luck to him, if it could be so ! But how can the company return it to him at the end of the year, when it has paid \$2.50 commission of it to an agent ? If there be a good reason for charging this extra \$25, what is it ? Is it necessary that he should pay \$25 extra that he may share the profit of insuring another man at \$75 ? Why ? There have certainly been some ridiculous features in Life Insurance as imported from Europe, as this method shows.

Let a company only charge such premiums as will be sure to cover all contingencies; wait till the premiums with their interest earned shall equal the assurance, and then make safe and large returns. This is the true principle. It certainly will not be safe to make them before. Made then, they will give to the long-lived a part at least of the advantage which is their due, while it does no injustice to any one.

Companies sometimes promise not only yearly "returns," but that they shall be "large." The *premiums* then must be correspondingly *large*—large enough to cover,

1st. All cost and expenses of insurance, including commissions on the necessary part of the premium.

2d. The "large returns" or so-called "dividends" or "profits."

3d. The agents' commissions on the "large" "returns !"

Can the "large returns" be as large as the sum of the "large returns" and the commissions on the "large returns," both of which might with safety have been left with the assured ?

It would appear that a part of the proceeding is

unnecessary, and decidedly to the disadvantage of the assured,—is it not ?

“ Beware of the Greeks bringing presents.”

The fashion of the old plan companies seems to be changing. As before observed, years ago dividends or returns were made at unfrequent periods, these were from time to time shortened, until many of the companies have advertised to make dividends every year ! and this was said to be a great advance. But about a year after the American Popular published its plans, a company started on the old plan, adopted the idea of not making any returns until the premiums, with interest at six per cent, should equal the assurance—and lately other companies have adopted the same general idea ; some making returns when the premiums at ten per cent. interest equal the assurance. Why six ? Why ten ? The true principle is that of the American Popular, —when the premiums at whatever interest they earn equals assurance, returns can and should be made. But these companies have made a great improvement upon their yearly return plan, and they now decry that which they so recently praised. They say their present method of postponing returns *will give a great result to the long-lived*, and in other ways, confirm the testimony of the American Popular.

The surplus when returned, either as cash or in reduction of premium, or by additions to assurance, is often called “dividends” and “profits,” as if there was not always a necessary cost or loss in Life as well as in Marine and Fire Insurance. Life Insurance is an unequalled and unqualified good to be enjoyed, and more cheaply than any other, yet like every other good costing something in money beyond what is received by the assured, except they die early. It does not in direct payments cost a person as much as he receives, but if

he lives long, what he will pay with interest will always be larger than the amount he can receive. In any other business, if because the exact value could not be known, a person should pay more for a thing than time proved that it was worth, and when the cost was known, received a part of his payment back with interest, would he call that "dividends," or "profits"? Nor should it be so called in Life Insurance.* It is merely a return.

Such words are doubtless often used by officers and agents who do not know any better, but it is suspected that in most instances they are used to mislead the public—as when it is said that premiums will net a person ten per cent., which is to be taken as meaning simple, not compound interest. In a series of years a small compound interest will equal a very large simple interest. For example, 7 per cent. compound interest will in ten years almost equal 10 per cent. simple interest. People are easily imposed upon thus, because not in the habit of considering the effect of interest, nor that it is theirs, nor that they have paid it unless they have handled it.

Not looking at the matter in the right light, they often regard the returns received and the workings of Insurance as little short of marvelous, and supposing that the returns (so-called dividends) are drawn from somebody else, they feel very grateful for what in fact is a part of the interest earned by their own money paid in excess of what was necessary. Their delight and their praises of those transacting their business would sometimes be reduced below zero, if they should compute how much they ought to, and would receive if too many losses and too large expenses had not been made by incompetent or unscrupulous officials.

* It is sometimes said that a large source of dividends or profits, so-called, arises from forfeitures. This is not the case, as will be here for shown when that topic comes up.

Forfeitures average to be a source of loss, not of gain.

APPENDIX A—5.

METHOD OF DETERMINING THE PROBABLE PER CENT. OF LOSSES BY DEATH TO BE ASSUMED IN COMPUTING PREMIUMS.

WE have hitherto used suppositions as the groundwork of our calculations and illustrations. We are now to leave the unreliable, and exhibit data for assumptions that are as reliable as can be desired. Where all looks mysterious and dubious, everything will be perfectly clear and satisfactory. The data and assumptions are not exact, but as nearly so as is necessary.

One of the most interesting of the Laws of Life is this: Inherent in the constitution of every living thing there is a lifetime to which naturally it is entitled.—No member of the Human Family is an exception. In one family a high age is averaged. In another family in similar circumstances otherwise, a low age only is attained.

If a neighborhood be composed of the former, the average age of its people will be high, if of the latter the average will be low.

Important Facts.

Of nations and races the same is true.

As these capabilities of living for a longer or shorter lifetime are inherited, so as, taking an average of a large number of families, to be reliable for at least one or two generations, it is evident that there must be a "general average" lifetime or age of a very large number of people, that for a few generations cannot vary very much—for it will be allowed by even the least intelligent observers that the sources of the length of life are threefold:

- 1st. Inheritance.
- 2d. Care of health.
- 3d. Freedom from accidental causes of disease and injury.

These do not change so suddenly as in a single or even two generations to affect materially the average length of life of a community composed of a very large number of persons. If then a census be taken of several large similar populations, in regard to the ages at which deaths occur, it will be found that the per cent. of those who die at each age is strikingly alike in these different communities, as would be expected by any one who understands the Laws of Life. If the populations are dissimilar it will be found that the united result will be very similar at different successive short periods. From such a census can be reliably computed the "general average" length of life; viz., from birth, and the average of each special age, or the "special average" of each age.

Tabular Proofs.

This is proved by a great number of Tables, that have been made by different persons in different places and at different times.

This appears so singular to those not familiar with the Laws of Life, that they wonder if it can be really so, and cannot be content with the answer that it *must* be so, but ask if the Tables have been practically tested. Certainly they have, for years, and though they vary from each other a little, and though the earlier ones are not so exact as those more recently made, for all practical purposes almost any of them may be used with satisfaction.

"Farr's English Tables, No. 3," are the most recent, and thought to be the best.

Extracts are given below, showing the interesting facts of every fifth year, in regard to a million of persons born, how many are living and how many die, the per cent. number that die, the "Expectation" and the "Expected Longevity." The fractions are not quoted except where essential.

The number of persons living and dying at each fifth year, of one million (1,000,000) born.					The per thousand number of persons dying at each fifth year of one thousand born.		Of those living at the beginning of each year, the following are the	
Age.	Living at beginning of the year.		Dying during the year.				Expectations	Expected Longevities.
	Males.	Females.	Males.	Females.	Males.	Females.		
0	511,745	488,255	83,719	65,774	163	134	39	39
5	370,358	366,460	5,033	4,866	13	13	49	54
10	353,031	349,478	1,983	2,045	5	5	47	57
15	344,290	340,273	1,781	1,888	5	5	43	58
20	333,608	329,142	2,764	2,819	8	8	39	59
25	319,442	314,603	2,926	3,024	9	9	36	61
30	304,534	299,190	3,068	3,163	10	10	32	62
35	288,851	283,143	3,254	3,279	11	11	29	64
40	272,073	266,511	3,529	3,402	12	12	26	66
45	253,708	249,207	3,912	3,555	15	14	22	67
50	233,216	231,064	4,395	3,746	18	16	19	69
55	209,539	211,576	5,144	4,439	24	20	16	71
60	182,350	187,477	5,929	5,409	32	28	13	73
65	150,754	158,275	6,921	6,509	45	41	10	75
70	114,370	123,807	7,695	7,489	67	60	8	78
75	75,777	85,347	7,483	7,653	98	89	6	81
80	41,115	49,018	5,832	6,382	141	130	4	84
85	16,877	21,688	3,328	3,972	197	183	3	88
90	4,770	6,739	1,260	1,673	264	248	2	92
95	833	1,320	285	428	342	324	2	97
100	79	144	33	59	417	409	1	101
105	4	8	2	4	500	500		
110								

To illustrate : Out of a million of persons born, there are 634,045 living at 25 years of age, 5,950 die during that year, which is a little less than one per cent. of the living. By adding the years that all at 25 live longer, and dividing the sum by the number of those then living, we have 36, the "Expectation" of 25, or the average number of years that persons of that age live beyond it, viz., 36 years. By adding that number to the age 25, we get 61, the "Expected Longevity" of 25.

These tables, by comparison and inspection, exhibit a great many very interesting facts. They show the difference between the per cent. of deaths of men and women at the various ages. It may be noticed that a larger per cent. die during the first year than decrease in the eightieth year.

Interesting Deductions.

The table of "Expected Longevity," though very simply made, is one of the most interesting and valuable for various purposes. It is usually called the American Popular "Longevity Table" because first produced and used by that company. Though of great practical value, and suggestive of ideas not otherwise occurring to the mind, and though especially of the highest value in thoroughly classing lives, it is merely the result of combining the ages with their "Expectations." The table will therefore vary with the "Expectation" table used, and should be named after it, Farr, Carlisle, &c.

For example, those who are 25 average to live 36 years more, or until they are 61, and those who live beyond 61 average to live 12 years more, or until they are 73. Again, those who live above 73 average to live 7 years, or until 80; and those who live above 80 average to live to 85. This gives an average longevity to several classes of extra good lives at 25.

For example, if a sound person of 25 years of age is found to belong to a family that has averaged to live above 61, he belongs to a class that will average to live to 73; and therefore, though 25, he has an "expectation" not only of 36, but of 48 years, equal to that of 8 years of age by the ordinary general average tables. If he belongs to a family that averages to live beyond 73, he belongs to a class that averages to live to 80 and

has an expectation of 85. If he should resemble a weaker branch of the family, he must be classed accordingly.

If we calculate from the table of the dying the number who de cease between the ages of 25 and 61, we shall find that they average to live 16 years short of 61 or to 45 or 46. Those who do not live to 46, do not average to live so long by 11 years, or to 35. Of a large number who, alive at one age, do not live until any specified age, the average length of life is a little more than half the difference between the ages. Thus we have data-points to class or premium inferior lives. For example, if a person, however healthy, belongs to a family that does not average to live to 61, he belongs to a class that does not average to live beyond 46, and has an expectation of only 21 years; a great falling off. This at once illustrates how rapidly the premiums should rise when the life promises to be short. This life though sound, must be rated at the age of 49, and should pay the premium of that age, unless the strongest evidence shows that he resembles a long-lived branch of his family and that he has none of the personal indications of the average short life of his blood. Even then, caution must be used not to class him too well, until by living he proves that he deserves to be transferred to a better class, when it can be done without any injustice to him or to those insured with him.

Exactness of Tables not Necessary.

It is not to be understood that the Tables are exact to the precise shade of truth, even when the fractions are exhibited. It is not at all necessary nor possible that they should be. No two sets of Tables are precisely alike. Those of Farr are the result of many minor compromises: For example; in this million

no one is represented as living to be 110 years of age. Persons do live even beyond that age. One such would of course disturb, to a minute shade, the "Expectations" of all the ages of the million in which he was found. No matter.

Many argue about the tables, and carry the fractions to many decimal places, as if exactness was of consequence. As will be seen, they are never to be used exactly in insuring. The figures of the Tables are near enough to the truth for any practical purpose, especially for their chief use, which is, to prove by test, and the general uniformity of such great results, that their causes,—the Laws of Life as exhibited in Family Inheritance,—are reliable, and to be fully depended upon in judging of the length of life if considered in connection with the personal indications of longevity. The results could not have been so uniform as we find them unless their causes also were uniform.

It appears that within fifty years the "general average" length of life has increased, fewer dying in the earlier years, showing that care of health, especially in infancy, affects the average length of life ; while the per cent. of the oldest ages remaining the same, proves that in Family Inheritance like produces like to a reliable average degree, and that accidental causes of disease and injury either do not upon the average vary from generation to generation, or do not materially affect the expectation of those born capable of attaining to the high ages.

These facts will become very conspicuous and important as we proceed.

How Premiums are Made from the Tables.

Assuming the figures of the Tables to be true, it would be very easy to compute the appropriate premiums, if all were compelled to insure.

But no one is compelled to insure. How will this fact affect the proposition to insure all at one premium computed upon the "general average," or "expectation" of life from birth? It would produce failure of course.

The older would embrace the opportunity of insuring at a less premium than the cost of insuring them; the younger would not insure.

The effect would be the same as seen in various relief and other benevolent associations, in which the same dues are paid by all. The inferior lives receive more than they pay, the superior pay more than they receive. That is not a pretended insurance, but a donation, that the strong, if they choose, have a right to make to the weak. But insurance means equality of risks, and the proportionate payment of premiums.

Insurance Companies have therefore discarded "general average," and assumed the "special average" or "expectation" of the length of life of each age as a basis for the computation of premiums for each age. This would answer perfectly well if the table was exact, or an allowance made for error, and all were compelled to insure.

But all are not compelled to insure. What then would be the effect of accepting all of the same age at the same premium? The inferior risks would hasten to take advantage of the offer, while the superior risks would be repulsed by so absurd and unjust a proposition.

Companies do not Abide by their Tables.

The companies, therefore, that compute their premiums on the "special average" or "expectation" of each age, at once discard this "average" when they insure, and resort to some three other specializations. They reject, 1st, females; 2d, children of early years; 3d, those in ill-health; 4th, most companies reject sound

persons who have had certain diseases within a certain time, or have had two near relatives die of consumption, &c. That is to say, they insure grown, sound males, without certain antecedents, of each age, at premiums based upon the "special average" or "expectations" and the "number dying each year" of all persons of the same age.

Their premiums are based upon one "expectation" and their insurance is made upon another, and intended to be a longer "expectation." It would certainly be longer if all of 25 years of age, except those rejected, were to insure. But they do not. Will then the average age of those who do insure exceed or equal the "special average" or "expectation" at which their premiums have been computed? Who can tell? If only a part insure, will that part be so good that there will be certainly sufficient money to answer requirements?

A Plan that Pleases the Short-Lived.

Is it not evident that the uniform premium to all, taken at each age, will have the effect to attract all the inferior lives, while it will be difficult to induce the superior lives to insure?

It is said that experience has proved that when the three rejections are made of, 1st, females; 2d, children; 3d, unsound lives; and 4th, those of consumptive antecedents, the balance, taken at present rates of interest, are safe risks.

But is there any rule used by which to determine with certainty the ratio of premiums to the "expectations" of those really insured? The premiums are made by a rule very easy to understand, that is evident. But are the persons taken measured by any rule that exhibits their "Expectation"? Evidently not. Now, to make the

premium by a rule, is no security unless the rule, or counterpart corresponds in the certainty of application.

Is there Security ?

Because a Company has been very careful in rejecting lives, does it follow that it will always be as careful ? Or if it should, does it follow that other Companies will be ?

Because present rates of compound interest are so high that many more losses may be made than were assumed in computing premiums, does it follow that the same will always be the case ?

If the desired result of securing sufficient money to pay all losses has hitherto been obtained, it has evidently been not from the application of any reliable rules, but because so much has been charged, that with the effects of high interest, there has been enough and to spare ; while there has been and is a constant jeopardy that the lives insured will not equal the requirements, and therefore prove fatal.

“ Can this be corrected ? ” Certainly. “ How ? ”

Wrong Basis.

In the first place, the fundamental idea or desire that has actuated insurance computations is wrong, is unjust, and of course works jeopardy, as does all injustice. The object seems to be to obtain merely security to the Company, without regard to justice to the assured.

The only objection most Companies seem to have to insuring very inferior lives at the average premiums is, that enough of the superior lives cannot be obtained to make good the shortcomings of too many of inferior. If all were compelled to insure, the old plan companies would gladly, according to their principle, make the

same premium to all of the same age, or go back to a "general average" premium for all, without regard to the very great injustice that would be thus done. Indeed those companies profess oftentimes that insurance is a great benevolent institution. But the long-lived do not seem to appreciate their opportunity, and often are so unkind as to suggest that there is no more of the milk of human kindness in the bosoms of insurance officers than could be found in men generally.

But should not justice be the fundamental idea in Life, as well as in Marine and Fire Insurance? Why not?

If all were compelled to insure, would there be any justice in making one premium for all, or for those of the same age? Is not justice the basis of all complete success?

Does not the constant jeopardy that a Company runs when it seeks security without regard to justice prove this? Should it not seek security through justice?

What then can be the use of all the tables of "general average" of Life, and "special averages" of each age, about which so much is said, as if they were a kind of abracadabra of insurance?

They are very convenient in various ways, but their chief use is, as has been said, to prove the correctness and the reliability of the cause by which such tables are possible, viz: the Laws of Life as acting in Family Inheritance.

How Premiums Should be Made.

Since neither security nor justice can be gained by making premiums on the basis of "general average" nor of "special averages" of each age, both justice and science suggest that we should go back one step nearer to the source of those averages, viz., to the average ages of Fam-

ilies, since those are chiefly and primarily produced by Inheritance, which is governed by the Laws of Life.

In that "average" of Families, we shall find a much clearer indication of what we are seeking, viz., the correct data for determining practically the "average" or "expectation" of those really insured, and for making just and security-giving premiums. Why not inspect the *elements* of "general" and "special averages" of ages, rather than the "averages;" which being compounded obscure what is sought, while it can be clearly distinguished in the elements? It has not, perhaps, been noticed, that those "averages" have elements, for the "averages" have usually been looked upon as laws, and not merely as the result, which they are, of the Laws of Life, acting through Family Inheritance. Besides the justice and security to be found in the data furnished by Family Inheritance, its chief excellence consists in the certainty and ease with which the Family data can be obtained, and obtained also *in regard to the cases really in hand*. Of course many persons know but little of their family history, though most individuals can look it up when they find that it will greatly profit them. What, however, they cannot tell, cannot be accounted in their favor. It is not, certainly, just that those who can give the important facts of their family longevity should suffer because some cannot. Also, in rare cases, much rarer than in most business, deception in regard to the family record may be practised successfully.

But as a whole, and for practical purposes, the "averages" or "expectations" based upon many family records, or upon the testimonies of the insuring parties, will be found as reliable as they are easily and certainly obtained. Whereas the tables of "general" or "special

averages of ages" cannot be precise, but must be the result of much incompetent testimony, and of many compromises, for reconciling discrepancies and adjusting little irregularities so as to exhibit as uniform general results as possible: good enough for all the practical purposes to which they are convenient, but not accurate enough for making premiums precise, either for justice or for security.

Illustration.

Suppose five families to average to live, one 16 years beyond 25, or to 41; another 26 years, or to 51; another 36 years, or to 61; another 46 years, or to 71; another 56 years, or to 81. The five averaged to live 180 years, or 36 years each.

Suppose they were all, at 25, sound, and without consumptive antecedents; viz., all insurable as sound lives in any company. Suppose, however, that of one family none live to 50; of another none live above 60; of another some reach 70; of another 80 is the highest age; while in one some touch 90 years of age. Now, suppose that one person of 25 years of age from each family applies for insurance. If one premium is made for all, it is well so far as security is concerned; but what of the justice in the case? But suppose that only four of these offer. If it is the four belonging to the four best families, it is well; but suppose that it is the inferior four that furnish the insured,—there is a failure. By the supposition all were insurable.

This is a true picture of what is taking place daily under the unreliable method of insuring upon the plan of "special averages of ages," with average corrected by the rejection of certain lives. The fact is that most of the companies do not get lives that will come up to the averages.

But suppose that each of the four inferior had been insured, and his premium made upon the basis of his "family average age" or "expectation," viz., of 16, 26, 36, and 46 years each respectively. Enough would be received from a large number thus insured to produce perfect security, while also justice would be done to all. Notice the important fact that each of the four is a good case, one as good as another by this plan,—being made good by the sufficient premium required.

Of course the inferior would prefer the other plan, if a sufficient number of the superior would submit to the injustice of it ; but the *security* found in family averages is, to the inferior, *worth paying for*. To the superior lives it is of still greater importance, since their misfortune is not so much, that they must by the old plan pay so much more than is just, as that, after paying so much, if there is any lack of means to pay the assurances the calamity will fall upon those who live longest.

Adjustment of Risks by Family Records.

But it may be said that by "family averages" great unfairness may be done to the assured, since three-fifths of families are composed of some naturally very long and some naturally very short lived persons. Indeed, it may be said that all of the five (or any number that the five may be supposed to represent) persons of the supposed families might belong to those above or to those below the average of their families. With the same premiums in the former case there would be a surplus, in the latter a deficit.

It may also be said that in some families of long-lived ancestry, all the descendants die young.

It is evident, therefore, that neither security nor justice would permit the average of a family to be the

arbitrary rule by which to premium and insure all its members.

Adjustment of Risks by Personal Indications.

Again, not families but individuals are insured, and the question therefore is, what will the average lifetime of a large number of similar individuals be, and not what is the lifetime of their families, except as that is one of the best and the easiest obtained indications of the lifetime of the insured; therefore a thorough, scientific medical examination, both pathological and physiological, of all the *personal indications* that will show the relations of an individual to his family average, is required in order to determine the relative premium that he should pay.

It has been seen that the length of Life is dependent on, 1st. Inheritance, 2d, Care of Health, and, 3d, Accidental Causes of disease and injury.

Therefore after, 1, Ancestry, the personal indications of the length of life must be found in—

2. Constitution inherited. 3. Health. 4. Habits. 5. Vocation. 6. Residence. 7. Intelligence. 8. Prudence.

These all refer to care of health, and include all the points by which the relations of a person to his family average can be indicated.

But when the family average is thus corrected by means of the personal indications of the insured, and an appropriate premium is adjusted, all is not done that is necessary either for security or for justice.

The most important step yet remains to be taken.

Thorough Classification the Great Feature.

The insured must be thoroughly classed in accordance with the risk estimated and the premium made,

in each case. Thus will justice become perfect, and security become complete. By thorough classing is meant, that not only similar risks shall be classed together, but that each class shall be distinct in regard to losses and surplus, each paying only its own losses and sharing its own surplus, as if in distinct Companies, and only sharing in common the common expenses of all.

There will be three grand results of this classing ; as there are three grand reasons for it :

1st. Because it is not only difficult but impossible to precisely adjust each premium to its case. But as it is desirable, especially with present high rates of interest, to provide for a large surplus, there will be no objection to a sufficient premium if persons are classed so that one cannot absorb that which by right belongs to another.

2d. Because, when persons are apparently below their family average, to make security doubly sure, it is best to make their premiums rather more than correspondingly large. But as justice as well as security is sought, if such persons by living prove that they were better than supposed, they ought not to suffer. Classed, they have a remedy, and only then ; for when, by living, they have proved their claims to a better class, they can be transferred into it, and receive in addition all the advantage of their extra money previously paid in the other class.

By this classing it is hence seen that the long-lived are sure to receive their due, while the short-lived will not be compelled to pay more than is just.

3d. Because the laws of some of the States require Companies working in them to reserve against each policy what is called its "liability." Now, as the amount of this is computed on the basis of the "special

average" of each age, it is much greater than the liability of the best risks. Hence, that this liability may be kept in reserve, a correspondingly larger premium must be charged to them.

If then they must pay a much larger premium than their cases require, ought not the excess to be scrupulously kept for their ultimate advantage? for if they must have more reserved against their policies while they live than is necessary, there is nothing to hinder a full return of all their due to their heirs.

This is made all right by thorough classing, which indeed, with the regulated premiums deals out equal justice first and last, while it conserves a security that can be attained in no other way.

It is well that this method of keeping a large reserve is the law. The larger premium necessary, causes those who by casualties die earlier to pay more in proportion to what they receive, and there is so much less for others who live long to make up.

It also prevents any one from saying that as much is not reserved by the plan of family averages as would be necessary under the old plan, though of course as much is not needed, if the lives are all of the best kind, and if not a higher premium is charged; the new plan is of course so much the more secure.

Thorough classing is therefore the great point and the highest attainment in Insurance, its *ne plus ultra*, and a *sine qua non*.

It may be asked, Why may not the classing be done in connection with the "general average," or with the "special averages of each age?"

It could be, but not as well.

Family Record the Best Starting Point.

In that case family average must be taken as the first element for classing, and as it is a long and a very important step towards the result, we had better begin with it.

That starting point is also one that everybody can appreciate, and that all say is sensible, while most persons consider it an absurdity to base premiums of the few insured, upon the "average" or "expectation" of the larger number not insured. To many it would not appear less ridiculous to include all the animals and plants, because they exhibit life and have a lifetime, in a basis for computing the premiums of a comparatively few persons, than it does to take averages of the lifetimes of all the men in the British kingdom for that purpose. No one will be satisfied with being classed upon such a basis. But everybody knows and feels that he is related to his family average of lifetime. The connection is direct and to be seen by every one, and every one will feel entire confidence in being classed in relation to his family inheritance. If this basis had always been used, there would be none of the distrust of the groundwork and reliability of Insurance that so universally exists.

APPENDIX A—6:

INTEREST—ITS GREAT IMPORTANCE IN LIFE INSURANCE.

AGAIN, we have been led to notice the conspicuous and practical importance of interest, since the difference between its rate as computed and as at present obtained, materially modifies the risks of extended insurance. Interest, however, is not one of the fundamental necessities of insurance. It could be successfully transacted if interest was not obtainable ; but premiums would be much larger, for all then received by the assured would have to be paid directly as premiums. As it is, there are only two elements to be noticed in computing the gross premiums necessary for a Term Life Insurance of one year:

Elements for Computing Premiums.

1st. The *number of deaths* that will probably occur during the year.

2d. The *loading* necessary to cover all other expenses of doing the business ;—but

3d. *Interest* must also be taken into account, in computing the premiums to be paid for longer terms than one year. At present rates it is an exceedingly interesting and important element of success.

Run no Risk.

As it is uncertain what rate of interest can be obtained in future, it is best to compute premiums at so low a rate that under any circumstances it will be realized. No risk should be run, as in insurance secu-

urity is to be first secured. From three to five per cent. interest is the rate usually adopted. The lower the rate the higher the premiums, if the same per cent. of loading is added in each case.

Striking Fact.

But in all well-ordered Whole Life Insurance, even when the premiums are computed at the lowest interest, no person will pay as much as he will receive. In fact, at present rates of interest he will *directly* pay *only about two-fifths as much as he will receive!* Mark well this striking and forceful fact. Observe how much, in case of a well classed Whole Life Policy, is accomplished by easily earned

Interest	{	1st. Pays a large part of each long-lived person's own assurance.
		2d. <i>Pays all the cost of Insurance.</i>
		3d. Yields large returns to the long-lived.

Therefore the hard earnings of no man are ever, in properly regulated, *viz.*, THOROUGHLY CLASSED, *Whole-Life insurance*, paid to others. He receives all that he pays directly, and some of its easily earned interest.

Valuable Consideration.

Again, is there no objection to computing premiums at a low rate of interest? It will make high premiums. Will it not be inconvenient for some persons to pay them?

Premiums should not, for the purpose of returning surplus, be made so high that the very object of insurance would be frustrated—people not being able to pay the premiums imposed.

The annual premiums should be made only what perfect security requires, and then let those who can

pay more and choose to do so, make 15, 10, 5, or single payments, and if properly classed and sub-classed they will gain what they wish and suffer no injustice. And let it be remembered that surplus either in case of annual or other payments, when persons are properly classed, is a very different thing from what it is on the gregarious plan, in which the larger it is, the more unjustly are the insured treated. In fact, by the old plan the long-lived appear to pay a penalty for their good lives.

It is nearly as well in all respects for the probably long-lived to be insured for \$1,000 at such premiums that they will produce a surplus sufficient to increase the assurance, if he does live long, to \$2,000, as it is to be insured for \$2,000 in the beginning at such a premium that he can never get more than \$2,000. In the former case, he is through with direct payments earlier, can obtain returns sooner, sell out his policy for more, or have his assurance largely increased. These advantages more than balance any inconvenience arising from paying such premiums as tend to produce a surplus. It is well if those who have deceased early have paid as much as they could afford, since there is so much the less to be paid to them by the co-insured.

It will also be remembered that—

Surplus depends upon	{	1st. Fewer <i>LOSSES</i> 2d. Smaller <i>Expenses</i> 3d. Larger <i>Interest</i>	}	than calculated.
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High Interest produces Surplus.

The first two are more under control or can be better calculated than the last, for which, therefore, a very wide margin must be allowed. If present rates of interest continue, they will make a large surplus and return

not only possible but necessary, unless too many losses and expenses are made. If they are kept as low as they may be, if the former is kept in check by thorough classing, and the latter by consulting only the good of the insured, the long-lived at least will be pleased with a truly grand as well as just result.

The Great Secret.

Here let attention be drawn to the great secret and the only mystery belonging to Insurance. It does not belong, nor exist there merely, but it is pre-eminently shown there. All that is surprising in the truthful promises of Insurers arises simply from the wonderful effect of Compound Interest added to systematic economy in regard to small sums of money.

A small sum of money such as every one can afford, laid up regularly every year and kept at compound interest, without the loss of an hour's time and without any diminution from taxation or other cause, in the course of a long lifetime aggregates to a sum that is a perfect mystery to most persons, and which they will hardly believe until they figure the matter out, when they find it is no wonder but merely the simplest thing in the world.

The beauty of thoroughly classed Whole Life Insurance is, that while from the uncertainty of even the best lives, the time for aggregations to become large is not allowed to all, those who do live long agree to share a part of the result of their living with those whose dependence has been early removed in a way that could not be foreseen ; and also that what is shared is interest drawn from the public that hires the capital from the companies. Indeed, the most striking and admirable feature of this kind of insurance is this, that it compels the public (by means of interest, that without detriment,

but with advantage to itself it pays to the company,) to do its duty to the families of those who die early, and without grudging to give to them the necessities and comforts of life, not as a charity, but as a right, and to a degree not otherwise attainable.

Truly, Life Insurance properly conducted seems likely to prove a beautiful balance-wheel in social economics. It exhausts no hard earnings, distributes only that which as interest is easily earned and spared, harms none, but blesses all.*

* The effects of Compound Interest are so remarkable and so little understood, that a few statements may impress its great importance.

Money doubles in about 10 years at 7 per cent. Com. Interest:

12	"	6	"	"	"
14	"	5	"	"	"

In other words, \$1,000 becomes \$2,000, \$5,000 becomes \$10,000 and \$10,000 becomes \$20,000 in those few years. But few kinds of business will average as much; for a great length of time no business can.

A father gave \$1,000 to his son at birth, with the condition that he should keep it at Compound Interest at 7 per cent. until he was fifty years old, and then give it to his youngest son, who was to keep it thus at interest until fifty years had passed and then divide it among his children. How much in the hundred years did it become? \$1,000,000 (one million of dollars.) In another hundred years how much would it become? One billion. In another hundred how much? More than all the value of the world, even if the Earth were a lump of gold. How much would be the amount of one dollar at compound interest in two hundred years? One million. Add three noughts for each hundred years and nearly the compound interest of any amount will be shown. What difference between the simple and the compound interest of one cent since the birth of Christ? It is eighteen hundred years since: therefore, one and eighteen times three, viz., fifty-four cyphers or noughts are required to express the compound interest. The amount is so large that merely the interest on the difference for one minute would equal a cube of gold, reaching from the earth to the sun.

Economy pays for Insurance.

But as most of the premiums paid for Whole Life Insurance are the result of economy and add so much more to the capital of the country, and as all persons seem inclined to take advantage of insurance, some may ask, if it will not thwart itself by inducing the economising of so much capital as to reduce the rates of its interest.

By distributing the comforts of life and thus increasing a taste for them, it is believed that insurance will

One thousand dollars (\$1,000) at Compound Interest for ten years becomes two thousand (\$2,000); in twenty years four thousand (\$4,000); in thirty years eight thousand (\$8,000); in forty years sixteen thousand (\$16,000), &c. Observe then the great advantages that belong to the long-lived, if classed together so that they will receive the advantages that belong to them.

A man who lives to be from 80 to 100 years old, and obtains Compound Interest at 7 per cent. upon all his surplus earnings, will absorb necessarily the surplus earnings of not less than ninety-nine persons diligently working during correspondingly long lives. That is to say, compound interest is so absorbing in its effect, that not more than one person in a hundred can have it at the rate of 7 per cent.—the other ninety-nine must be his slaves to earn it for him.

The person who pays Compound Interest sacrifices the future to his present indulgence or necessity, and if he continues to do it, he will be ruined; while he who economises and puts his savings where they will gain compound interest, sacrificing the present to the future, will be sure of a fortune if long-lived. Hence, why it is proper that Trinity Church should stand at the head of Wall Street, signifying that what is true theologically in regard to sacrificing the present to the future is also true financially.

By virtue of the effects of Compound Interest, a young man who saves so small a sum as one cent per day, can with it insure more than \$100 for use in his old age, or 365 cents per year will insure him more than \$1,000 at death, and yield more than \$50 yearly income in advanced years, or if need be he can use the whole. Who, then, cannot afford to insure? Who, indeed, can afford to do without assurance?

increase the relative demand for capital, and will thus fully sustain or even increase the rates of interest. Nothing else so stimulates the energy to labor and nothing else so stimulates the desire to economise for a family as the certainty of good results. To produce these in one of the most important directions is the object of the American System of Life Insurance.

Speculation not Allowable.

Because the losses are so easily paid by interest, is, however, no reason for allowing them to be unnecessarily made.

Of course any fairness in Insurance should avoid an agreement by which those who live would be obliged to pay for a taking off that could be foreseen. For example, a person who is temperate would not wish to agree to pay for a party who dies of intemperance or any disease promoted thereby, or in case of death in any other way that the party could have avoided.

Some, to be sure, desire to make use of Life Insurance as a speculation, being desirous of insuring if they think they are nearly or quite sure that they cannot pay premiums that with interest will equal as much as they will receive. This is the most wicked form of speculation, and shows the necessity of thorough classing ; it is by that means alone that no one can be insured for less than his risk is worth. Again, injudicious taking of risks that produce too many losses by death must be avoided, or insurance will thwart itself, since

Deficit must re-	$\left\{ \begin{array}{l} \text{1st. More losses} \\ \text{2d. Larger expenses} \\ \text{3d. Smaller interest} \end{array} \right\}$	than
sult from		

The 1st is the chief cause, nor can small expenses or the largest interest prevent a failure if too many losses occur.

APPENDIX A—7.

EXPENSES.

EXPENSES may be arranged under two heads, according as they are for the immediate purpose of transacting business from day to day, or as they are investments permanently made for the purpose of establishing the company. Some of the expenses belong at once to both categories. In many cases it is difficult to say whether an item should be carried to the account of running expenses, or to what in many kinds of business, is called construction account. Of course there is much of the latter in a new company compared with what is necessary in an old one.

It is the custom, however, of all the *old* companies to exhibit their expenses, *in proportion* to their *business*; and of course as age has brought much business and makes yearly investment expenses small, the comparison will appear favorable, even though the running expenses have been *very extravagant* and the real state of affairs is against them.

Suppose also that one company has done a good Life business and that another has done a *losing* Endowment business, the comparison will be much in favor of the latter. Such comparisons are therefore worthless unless more correctly and understandingly made than is usual.

In case of a "Mutual" plan being preferred, an old company should be chosen, as those who join a new one must assist in establishing it, at a greater yearly expense than it will cost in a company already established or partially established. In a "Mutual" company the

insured are much interested in the matter of expense, and should look after it carefully ; especially that which goes to investment or construction account.

In a Stock company the insured have nothing to do with the expense, it is none of their business ; it will be carefully looked after by the stockholders, who will not permit it to be excessive.

As may be seen, expenses will come under the heads of agents and printing ; office and officers. It seems next to impossible to induce most people to act, however much their judgments are convinced, without the aid of the living voice and persuasive influence of the preacher. He must also have the aid of all the necessary documents, while judicious advertising is always thought to be an essential means to the best success of either a good or a bad thing.

Disadvantageous Expense.

But great display and expense are also believed to be made, rather to gratify the vanity of officials than because necessary to the prosperity of a company. The large salaries too, that some officials in Mutual or Mixed Life Insurance Companies are said to receive, are not thought by all to be essential to the securing of equally good services, but are supposed to be voted by the officials themselves or by their friends, and not with reference to the interests of the insured.

It is frequently asked, "How can this expense be afforded ; somebody must pay for it." "Persons previously without large means or even without any, are hardly in their official positions in an Insurance Company before they seem to be possessed of affluence. Offices are furnished as if it was expected that the business could support any extravagance."

This display may be in part the fault of the people. It is said that they like display and will judge accordingly of the success of an institution. If this is the case, extravagance pays well. The fact is, the business of a company should be transacted as a discreet person would do in his private affairs—which will be more likely to be the case in a Stock than in a “Mutual” company. The American Popular believes in the strictest economy.

But there is another aspect to be observed. “Mixed” companies, so called because they profess to be both Stock and “Mutual” though really neither—have been chartered the privilege, in addition to the regular interest on their “guarantee,” of taking from five to twenty per cent. of what they are pleased to call “profits,” but which are merely parts of excessive premiums. These parts should be called “returns” and *returned to the assured*, to whom they *wholly* belong.

A company that took one-eighth, or twelve per cent. of such yearly calculated profits, did business to such an amount and of such a kind last year, that by the old plan of computing reserves, one-eighth of the surplus allowed to the stockholders *forty-five per cent. in cash*, which was paid at once, while the seven-eighths declared to the assured is not to be rendered until four years have passed! Such stockholders will be apt to vote good salaries and bonuses to the officers, especially if they are nearly the same persons; at least their own interests are in favor of immediate results, and in opposition to the interests of the long-lived. The method is in direct antagonism to one of the best passages in Scripture, “Lead us not into temptation.” Few men can withstand the temptation of forty-five per cent. Shall such things be, and a company call

itself "Mutual"? Stock companies cannot cloak their doings under such a name.

Such are the advantages of a Mixed company. Either use a "Mutual" or a Stock; a Hybrid Insurance Company is never desirable, it has all the disadvantages of both and the advantages of neither.

One thing is certain—that the incapacity, indifference, or greed of officials often may cause extravagant expenditures, absorption of too much of the funds, or too many losses, either of which will be sure to entail bad effects on the assured.

Balance Interests.

The only remedy for this evil seems to be to have all concerned in making the Assurance—Agents, Examiners, Officers, Directors, and Stockholders—pecuniarily interested, as in the case of the American Popular Life Insurance Company, in the ultimate results of the cases taken and the successful operation of the company. Thus one temptation, and one pecuniary interest, the immediate one, will be balanced by another, which should be made equally strong though it must be a future one.

Expenses are not, however, the chief point.

The art of making insurance profitable, consists in classing; and in keeping money at interest straight along. It must thus pay higher in a long-term than it can in any other way. Those who insure "half note," paying interest, exactly lose by the interest they pay, what their "cash half" is earning them, therefore they make nothing from interest. Interest makes great gains, because some pay it, willing to sacrifice the future to the present; such persons will experience perdition, while

those who sacrifice the present to the future, taking interest, will if long-lived, necessarily secure a fortune.

Longevity, industry, economy, intelligence, liberty, peace, and compound interest must secure a competence for old age, and a reasonable legacy for descendants. But as the first is uncertain, *insurance is essential, to perfect the group.*

APPENDIX B.

"MUTUAL," "MIXED," AND STOCK PLANS COMPARED.

A LIFE INSURANCE Company should be the most carefully organized of all corporations ; it is to be a perpetuity, renewing its life and strength from year to year, from generation to generation, even from century to century ; and while it may be said that it is impossible to make any human institution perpetual, on the other hand it will be admitted that such must be the aim in projecting a Company for the insuring of human life ; and that no system or plan should be adopted, no matter how great the apparent *present* advantages, in which anything even remotely dangerous to the life of the institution can be perceived.

It must be admitted, that if we aim continually at perpetuity and judge every step by its effect on the durability of the Company, we shall in the main act most intelligently. Is it not true that the highest individual and collective intelligence of the world is directed to the perpetuation of good governments and other social institutions ? In nothing does this appear to be more important than in the institution of Life Insurance, which must not only continue through our lives, but through those of our children.

Unfairness, inequity, and all other short-lived ideas and methods must be eliminated from an institution whose life, to continue, must pass unscathed the ordeal

of Time, and the criticisms and investigations of successive generations.

To attain such perpetuity we must have,

First. A perfectly secure organization, with which must be interwoven and combined (as a necessary and component part), a thoroughly logical and equitable system.

Second. Integrity and skill in the highest degree to attract business.

Third. Integrity and skill in the highest degree to determine on "risks" to be assumed.

Fourth. Integrity and skill in the highest degree to take the care and management of funds.

Fifth. An underlying and motive power that will secure fidelity to these principles, not only in the present incumbents in office, but their successors.

That power, and one which must underlie all human success, is an *honest self-interest*. It must be in the highest degree the honest self-interest of Directors, Officers, Agents, and all the Employees of the Company to have its affairs *managed just right*.

These postulates being accepted, let us, with their aid, examine briefly the different methods of organization of companies in general, and then more at length discuss the "Mutual" plan. There are three kinds of organizations among Life Insurance Companies, designated in Insurance parlance as follows:—

1. The purely (joint) Stock.
2. " purely Mutual (so-called).
3. " Mixed (said to be Stock and Mutual combined, though it really has none of the true Stock features; for though it takes it does not give, as will be shown.

The Stock may be subdivided into those that make "returns" to the assured and those that do not. The

former are in England called "Mixed" companies ; but they do not correspond to those so-called here, which are, in fact, a subdivision of the Mutual companies, the like of which they do not have in England and should not have anywhere.

Each plan contemplates a "contingent fund" over and above that estimated for losses and expenses. In the first or "purely Stock," this fund is called a "capital;" it is advanced by capitalists, who in return therefor participate in the results of the prosperous management of the affairs of the Company.

The policy holders have no interest in the company other than in holding it to a faithful performance of its contracts with them. The premiums which they are required to pay, are such as will cover losses and running expenses but not those required for establishing the company. The stockholders are the company ; they select from their number a Board of Directors, who in turn elect the officers.

In the "Mutual" company, there are no stockholders in the sense referred to above, but the "contingent fund" (over and above losses and expenses) is contributed by each policy holder, the premium on his policy having been calculated as in the other plan, to cover losses and expenses, and an additional amount for establishing the company or for a "contingent fund," in consideration of which it is said that he is to become a "shareholder in the profits, and a member of the company entitled to a vote in its elections;" the policy holders elect a Board of Trustees, who in turn choose the officers, or a Board is originally appointed *which perpetuates itself!*

Now it will be observed that in the Stock company the contingent fund being the capital, it remains fixed—while in the "Mutual" it is fluctuating ; increasing and

diminishing with the coming and going of policy holders—in a successful company increasing in the main very rapidly. Obviously, the larger the capital the smaller will be the rates of its compensation.

In the Stock company, where the “contingent fund” or capital is advanced by the stockholders, the policy holder is assessed a premium just so much the smaller than that which he is required to pay in a “Mutual” company, as corresponds to the capital used in establishing the company.*

It resolves itself into this, that for the same money a larger amount of assurance can be secured at once in a Stock company; for in a “Mutual” company years must elapse before the annual returns of surplus will realize an assurance of equal dimensions. This is fully shown by the fact that no “Mutual” company in this country has reduced its premiums to equal those of the “Stock” companies.

* By many it is thought that a Mutual company does not have a capital. We sometimes see it advertised that a company has retired its capital, and therefore has none, which is not the case; for it does and must have a capital. On the other hand, the assets of a company are sometimes advertised as capital. These errors arise from not making a clear distinction between a capital proper and a “guarantee” capital, and between permanent investments for the construction of business and funds invested on which interest is to be drawn.

In all insurance companies there is, and must be, an investment made in building up or constructing their business, which investment or expense, would, in a railroad company, be carried to construction account. Such may be counted as running expenses, but they are not properly chargeable solely to the earlier insured, since they are for the benefit of the company during its entire life. It is to this construction investment of permanent capital, not directly a guarantee, though indirectly the best, nor directly a source of interest, though indirectly of the greatest advantage and a *sine qua non* to a company, that reference is made in the text. Much of it is necessarily invested by every company, and it is believed that very much more is used by a “Mutual” than is needed by a Stock company. If they use equally, *at least 25 per cent. more than is*

Thus it will be seen how it is possible for a life insurance business to be very remunerative to a capital stock under the vigorous and economical management of a Stock company, while a "Mutual" company doing the same business would have little to divide among a large number of policy holders.

The "Mixed" organization is simply that of a "Mutual" with the addition of a "guarantee" capital in order to secure the early policy holders. When this is accomplished, and the policy holders have become sufficiently numerous, and the payment of surplus sufficiently large, in a word, when the company has become self-sustaining, this capital should be retired; *as to retain it*, and thus have two capitals, or "contingent funds" to be compensated, *would be defrauding the policy holders*; at least, if a larger per cent. than it earns is paid to the guarantee. If only that which it earns is paid, it will usually be taken up at once and invested more profitably.

It will be seen, therefore, that this capital is not strictly speaking "stock," but merely a guarantee for

used must be drawn from the insured by the "Mutual and Mixed," as it costs them that to collect what they use. They take from the assured an allowed large premium, a part of which is computed for expenses, but how much of this is used for running expenses and how much for construction expenses, who shall tell? It is probable that in some companies the latter will amount to millions, the cost of collecting which is correspondingly great. Nor is there any Mutual company in which this construction investment has altogether ceased, something being yet every year drawn from the assured, and permanently fixed in extending business; which investment will avail to those who make it, no more than it will to those who hereafter derive advantage from it. Let no one hereafter say that a Mutual company has no capital, when it has permanently invested large sums which have cost *at least 25 per cent. more to collect* than the permanent investments of any Stock company, and is every day drawing from its assured at similar relative expense the means of extending and constructing business.

security, or a bond only to be continued for a short time, if justice is done to the assured.

Again, the system of Insurance adopted by the "Mutual" companies is necessarily that of the "Old European," or "general average" plan, the evils of which exist of course, wherever it is employed, either in the Stock, Mixed or "Mutual" organization.

This is a system which attracts the "short" and repels the "long-lived," and is therefore in a high degree unfavorable to *perpetuity*, and as it is so unfavorable to the *long-lived* it does not, at least in this respect, fulfil its mission of being purely "mutual," for while it is true that it gives some of its surplus to its capital, it awards by far the largest and therefore an undue portion of it to a *special class of its policy holders*, viz., the *ascertainable* short lives; a class too who are positively detrimental to the other, or long-lived class, from *whose overpayments all surplus arises*. We say *ascertainable* advisedly, because the system contemplates the insurance of "short" (but not necessarily unhealthy, lives,) provided always that a sufficient number of the "long-lived" can be obtained to balance and pay for them. Taking advantage of this, persons who know themselves to be probably "short-lived," speculate in insurance to the great gain of their families, who at their early death realize immense profits on the sums invested. This favored class thus receive a *far* larger share than any capital or stock would demand, or any Stock Company dare to give. In fact, so far as advantages are concerned, the naturally short-lived are the true stockholders of a "Mutual" (so called) company, and are the greediest "cormorants" that ever preyed upon the vitals of a captured victim, while the long-lived are the stockholders *in regard to losses*. This is

one of the many absurd injustices perpetrated under the cloak of a so-called pure mutuality.

The fact that the assurances of old policies do sometimes nearly or quite double under the "mutual plan," blinds the long-lived who hold them to the existing wrong, and prevents them from inquiring why they have not *quadrupled*, as should be the case, for the money they have paid.

Now will a stock company proper, be as likely to admit short-lives as a "mutual" one? Will not the personal interests of the "proprietary" take greater heed and watchfulness than the officers of a "mutual"? A very few short-lives discarded will make a vast difference in the results; more than all the profits that a stock company would crave. The success of the English companies, is doubtless owing to the fact that most of them are Stock and therefore careful, while the increasing carelessness of the American companies, in insuring poor lives is equally owing to the fact that most of them are "Mutual" and their officers chiefly anxious about the amount and not about the kind of business done.

The weakness of the Mutual organization will be evident when we examine its details more fully, and recognize the startling truth that there is nothing that rogues would fear in our most prominent Mutual Companies to prevent the Officers from running away with the available funds. *There are no guardians of the insured made ceaselessly vigilant by self-interest, either to protect against wholesale robbery, or prevent the more to be dreaded and frequent retail speculations, overcharges, lavishness, extravagance, etc., etc.*

The policy holders are the Company: what their names are, where they live, etc., is only known to the officers of the Company, who in the event of an election obtain the proxies of those who cannot

attend in person. These officers receive salaries, the amounts of which are nominally fixed by the Board of Trustees ; *nominally* because, practically, the officers *suggest* the action of the Board in all such matters. It will be seen at once that the policy holders (notwithstanding the specious cant about their being members of the Company), are practically debarred from exercising any control in its affairs. But it may be said that a convention could be called ; true, but the opportunity for useful action on the part of such a convention would have passed, when the necessity for its being called became generally apparent, and even if it had not, such action would mean revolution and ruin to the Company, and consequently to the personal interests it was designed to protect. Who would patronize a Company, thus demonstrating the evils and dangers of the system ? No, it cannot be denied that the officers easily insure such action as suits their own ends. It is true that the Directors may be a body of honorable, capable men, but they have no pecuniary interests in the success of the Company ; but on the contrary, very strong personal interests *elsewhere* ; their watchfulness is lulled to sleep by apparent prosperity and success ; hence practically they leave everything to the *officers*. It may be remarked incidentally that so difficult is it to secure the attendance of these Trustees at regular meetings, that a custom has grown up in many Companies, of paying them \$5.00 in gold and giving them a handsome lunch for their hour's service. This custom is in itself a sad illustration of the practical workings of the system. Everything is left in the hands of irresponsible salaried officers. Can *perpetuity* be attained by such management ?

With a knowledge of these facts we are not surprised to hear from all quarters of lavishness and extrava-

gance, of the reckless management and ephemeral policy of many of the Companies.

If the recent rumors of large defalcations in some of the Mutual Companies are not true—we hope and believe they are not—the fact that they exist illustrates that it is believed that they may occur in Mutual Companies. If they can our point is gained, as that shows that their perpetuity is endangered, as is not the case in Stock Companies.

The dangers which beset a Mutual Company are not, however, most imminent in the earlier years of its existence, when the benevolent and high-toned ideas of its founders are still fresh, and before a great financial prosperity has been attained ; but when success has crowned honest effort, and the treasury is full, then keen-eyed avarice lays her snares, and bad men seek and *get* control because there are no guardians, made vigilant by *honest self-interest*.

There is no Capital Stock, the company has *no backbone*, there are no stockholders to suffer if an improper officer is elected, if extravagance exists in the place of economy, if bad management prevails in the place of skill and far-sighted prudence.

Self-interest, *honest self-interest*, is the underlying motive power not only of present success but of *perpetuity*. If there were a Capital Stock, if the Directors or Trustees and officers were Stockholders, who would make or lose according to the true status of the Company, would not there be a more vigorous and healthy state of affairs ? Would not the interests of the Company be more closely guarded ? Would we not find rigid economy where now we find extravagance ? Would we not find the assured better off, not only in the present values of their policies, but in what

is far more important, the security and durability of the Company? Most certainly.

But let us look at other evils arising out of the management of irresponsible officers; not the least of which is that of nepotism; the officers gather their relatives, friends and dependent ones about them without regard to the great interests of the Company; promotions are made, salaries raised and bonuses given without respect to merit, or effectiveness. The extent of this evil and the dangers and difficulties which are arising out of it in our most conspicuous companies can never be fully realized except by those who have the opportunity of personal observation; it is not, however, an exaggeration to say that with this evil alone unchecked, *perpetuity* cannot be expected.

Again: In insuring lives on the old "general average" "mutual" plan, it was found that such was its inequity in its *individual* application, that the philosophy of the business must all be confined to the parent office; inquisitive inquiries of conscientious agents or timid patrons, must be checked by a system of mystification and pedantic display of technicalities, formulas expressed in algebraic language, (which would oftentimes be more convenient even to the experts if expressed in simple arithmetical ways), and a thousand and one indefinitenesses, shrewdly intended to mislead and discourage investigation, the whole glossed over with a ridiculous cant about mutuality, philanthropy, etc., well calculated to deceive, especially when no opportunity is given for obtaining full information. The agents were taught nothing but what the Company had *done* and proposed to *do*, nothing of the *how*, or the *why*, or of the philosophy of the business. From this want of knowledge on the part of the agent, has arisen one of the worst evils of the business, that fearful one

of misrepresentation, exaggeration, and sometimes downright falsehood ; and while it may seem a hard thing to say, yet the observing insurance man must see its truth, viz., that the most successful canvassers for Life Insurance have often been those who were the most reckless in regard to their statements ; but the fact must also be recognized, that it is not so much that these men misrepresent wilfully, and with a full knowledge of the extent of their misstatements, as it is that they have *no standards of truth nor facts*, from which to measure their assertions ; they have no means of knowing what the capacity of their system is, what it can and what it cannot do. Once having departed from the truth there is no limit or check to their statements, except in the credibility of their hearers.

So prevalent has this evil become, that it is now a matter of common notoriety. It has, however, grown more out of this iniquitous mystification and the consequent ignorance of the agents, and the schemes of the designing, who make them mouth the lies they dare not father themselves, than the fault of the agents, who are mostly hard-working well-meaning men. This talk about philanthropy and benevolence, of mutuality, of doing everything for the insured, and the like, attracts many conscientious, kind, and simple-hearted men ; many persons go into the occupation of the solicitor, who fancy that they can thus earn a livelihood, and do good at the same time, and with all their suspicions lulled to sleep by grand ideas of well-doing, they become the best of agents, the most infatuated of advocates, every success strengthening their convictions and making them more intolerant of opposition. Indeed, it cannot be denied that the public mind in general is in a most defenceless condition on this subject, and we need no

stronger evidence of the success and extent of this system of mystification than this prevailing ignorance.

It must not, however, be inferred that all these wrongs are deliberately perpetrated ; that all these evils were planned. No, they were not thought of, although they should have been, by the founders of the system ; they are the developments, the accretions of Time ; they are characteristics of maturity, not incipency. If it is asked why they are not exposed and corrected by the Companies themselves, the answer is plain, there is no one sufficiently interested to do the work, and many interested to prevent it ; "Ephraim is joined to his idols."

We have seen that the agents and the public have been kept in the dark in regard to the philosophy and rationale (if there is any such), of the system ; let us take a step farther : Shall the clerks and other employees be received into full confidence ? No, they that are nearest the oracle, must be the most impressed with its infallibility. Must be, as they *are*, the most mystified, as thus they will prove the most potent agents in blinding the eyes of others.*

Let us see who is the oracle. An actuary or confidential book-keeper is employed, made an officer of the Company, entrusted with the handling and control of all the machinery ; he fixes premiums, calculates returns of surplus, values of policies, keeps the records, makes

* An intelligent young man, industrious and ambitious, who had sat by the elbow of, and worked under the actuary of a large Company for some three years, was recently asked to explain the details of their methods of distributing surplus, etc. He could not do it ; his answer was, "That is Mr. ——'s (the actuary's) department, we are not allowed to know about that." He went into a fog three years ago, has floundered in it ever since, and is continuing in the vain hope of attaining a something, he knows not what.

the reports, in a word, is the grand *book-keeper* of the institution.

Business pours in, the Actuary's Department is immersed in a flood of work, and maze of figures; its chief becomes in the eyes of the Directors and even of the other officers a great man, and it is soon realized that in making an oracle they have also practically made themselves a master, who *demand*s and *receives* much, because the other officers cannot follow him through the intricacies of his Department, through the special net-work of inaccuracies which he has been employed to organize; they cannot do without him, cannot supply his place; do not dare to offend or make him an enemy; *so we find the reins of authority of a great business concern, in the hands of its head book-keeper.* Can *perpetuity* be expected? Or shall we not rather look for *ruin*?

But it will be said that he and his Department can always be measured by recognized business guides and standards. This might be true if the system of the company and of the Department in question were founded on correct principles. But they are not, and *there is no measure.* This may be recognized by the constant changes made in the operations of these actuaries. Now the "percentage plan" is correct, now it is wrong and the "contribution plan" must take its place; now the "dividends" should be made once in five years, and again they should be made annually, and yet again the same parties have said they should not be made under many years. For years one set of premiums are right, then a large number of them are increased. Last winter (1868) nearly all the cash companies raised their "endowment" premiums nearly 12 per cent. Why so, if they were not too low before? They were. Is there then a measure?

This is no over-drawn picture, it is taken from the *life* by a writer conscious of his inability to express the truth with sufficient clearness and force, a writer who feels most deeply the conviction that if the scrutinizing attention of an intelligent public should be fixed upon these corporations ; should examine carefully their tendencies ; should weigh them in the balance, *they would be found wanting.*

It is the mission of the American Popular system to dispel such mystifications, to sweep away all such inequities, to make everything plain and simple, and to hasten the era when Life Insurance will be as easily and fully understood as Banking or other general business is to-day ; it will then be generally employed for its *true*, and not for its imaginary and speculative *value* ; and its policies will be purchased, for the relief they will afford and the certain provision they contain against contingencies that cannot be foreseen.

One writer has said—"Towards the enlightenment of the public, the American Popular Life Insurance Company, based upon an American system, has already made rapid strides ; its literature abounds with plain truths heretofore unknown, and embraces the clearest exposition of the business and its philosophy ever written ; its organization is thorough, its officers are efficient, careful and economical ; its means are ample, its system perfect and satisfactory, and its earnestness intense. No company was ever projected better calculated to attain perpetuity."

APPENDIX C.

"ALL CASH," AND "PART NOTE," OR "LOAN," PLANS COMPARED.

THE object of Life Insurance is to secure as far as possible in the power of man, a *certainty* to one's-self in the future, or to the surviving family or other dependent ones. Its first principle is, therefore, that it should be a solid, substantial, honest, purely business transaction, having no semblance of deception nor any germs of it even in the attractions to insure, that can ever grow up into disappointment, but in promise as in performance, it must be kept high above all doubts, exaggerations, or glosses, and conducted with the strictest integrity of purpose, proposition and fulfilment. With this measure or test of correctness, let us proceed with our work.

1st. All will assent that all persons insured desire to have their assurance paid in "cash." The least uncertainty about that would reduce the value of insurance to them, and lower its standing in the community.

Is it *certain* that in any case of a "part note" or "loan" plan the whole of the assurance will, under any circumstances be paid in cash?

A gentleman insured "half note," for seven years in a company that has not averaged fifty per cent. "dividend," so-called, found his note yearly increasing, and computed that as he paid compound interest on the increase, at the ratio at which it had been growing if he should live to be seventy years old his heirs would owe the company much more than the assurance. This was not what he bargained for, and he rightly concluded to

forego his privilege of enjoying that plan any longer. In case of a "part note" or of a "loan," interest is paid to the Company to a corresponding extent, and to that extent the advantage of insurance is lost. To receive compound interest is the art of growing rich, to pay it is the art of growing poor. Receive interest from, but pay none to a company, is the correct insurance motto. How, then, will the "part note" or the "loan" plan stand? ! !

2d. It is evident and will not be denied, that any company cannot pay out more cash than it receives. If only half the premium is received in cash, only half as much can be paid out as might be if all the premiums were paid in cash. If more cash is promised than is received there must be a deficiency. All insured are therefore interested to see that as much cash, including interest, is received as is promised ; especially is this the case with those who live long, for if those who die early absorb all the cash received, the long-lived must come short of cash and be paid in notes or not paid at all, which is just as well.

This idea is made conspicuous when the question is asked, Why not take the premiums in "notes" entirely? All will reply, that would not do, there must be cash enough to cover the assurance. As increasing the "note part" does not, while increasing the "cash" does increase the assurance that can be paid to the assured ; and as, also, all allow that some "cash" is necessary, it is evident that insurance is really dependent on the "cash" part alone ; the only true guarantee.

3d. If the "part cash" is sufficient to pay all the promises of a company, why take any note? It may be said that the interest on it assists a company. How so, when the interest is but six per cent., and seven and

a half per cent. commission is paid on the "note part?" Does not the "note" cause one and a half per cent. commission loss? Besides, could not the amount of interest be added to the "cash part" and thus the "note" be occluded and no interest paid on it?

4th. But the note advocates say it is not certain that the "cash part" will be sufficient ultimately, hence the notes are intended to provide for unforeseen contingencies. This confession of weakness and uncertainty should preclude the plan, since *to insure means to make certain*. But, as those who shall die before the contingencies occur will be paid in "all cash," the *risk is entirely upon the long-lived*. Hence those who are *probably* long-lived should not, but the probably short-lived should insure on the "part note" or the "loan" plan, if they think that plan will live longer than they will!!

How can notes be used? It is answered that they can be utilized by assessment, by paying them as a part of the assurance, or that they can be refused altogether, since the condition of the policy is for the payment of dollars, neither "notes," nor "loan" being promised as receivable in part payment.

The assessments of "fire notes," based upon saleable property, are difficult to collect, but life "notes" being often baseless, and in case of assessment because there is nothing in the treasury, the policies having plainly no "surrender value"—How many assessments would be paid?!

The "notes" often counted before the public as assets, might not unreasonably be used as such in payment of assurance. But would not this disappoint very many? If the "notes," or "loan," are refused, and all cash demanded, though in accordance with the terms

of the policy, would not most people be sadly disappointed and disaffected?

5th. Could, then, the notes be made available? Evidently not. The "cash" alone is reliance.

Let, then, the "cash part" be made large enough to cover the full assurance, under all contingencies, and there will be no disappointment. This is what a stock company does. No stock company is "part-note," nor is it part "loan." That argument should be conclusive. Stockholders will be careful not to promise anything that they cannot fulfil.

Is not our reasoning sufficient? The American Popular is therefore "all cash," sufficient for all contingencies and to make sure also of a return. If contingencies do not occur, so much the better for persons who live long.

N. B.—The "loan" is worse than the "note," for the former has all the ugly features and deceptive effects of the latter, but is more easily veiled from the observation of the assured. In case of a note a person is partially, at least, aware of its character, amount, &c. He also may be with a "loan" endorsed on his policy, but he is often told that it is not a note, and as he is not called upon to sign it, he does not, usually, appreciate that it has all the disadvantages of a note with one or more other disadvantages.

In no case can the long-lived be benefited by a "part note" or "loan" plan, but in every respect must they be at disadvantage if they use either.

CONCLUSIVE PROOF

That a Stock Insurance Company if equally well managed, (which includes making returns, etc. if premiums are large enough to permit them) not only is, but of necessity must be more profitable for the assured than a "Mutual" Company can be.

—•••—

[\$50.00 is offered by the American Popular Life Insurance Co. for a refutation of the following argument. See terms below.]

—•••—

*It is usually thought that if the management of a "Mutual" Insurance Company is as good as that of a Stock Company, its effect upon the assured will be greatly preferable. This is an error.

There is a fundamental reason, on account of which the stock plan, under *equal management, must be the best*. Stockholders of insurance companies may receive a good per cent., not only not to the disadvantage, but *to the great benefit of the assured*.

Many wonder that Marine, Fire, and Life Insurance Stock Companies can do so well for the insured as to compete successfully with Mutual companies. As a proof that it cannot be so, it is advertised that in "Mutual" companies "all the profits go

* It might be best at once to define what is meant by "Mutual," "Mixed" and "Stock" Companies—since some define the difference as if dependent on "returns," "dividends," etc., which, in fact, have nothing to do with the distinctions that in this country mark the three kinds; but we will discuss this by and by.

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to the assured, who are themselves the stockholders in Mutual companies." This sounds well, is attractive, and at first glance appears reasonable. It at first appears as if all that the stockholders in a Stock company gain, the assured must lose, who will, therefore, be the gainers if they can save it to themselves. What can seem to be plainer? If they really can retain or regain it in the "Mutual" companies these must be the better. But many suppose it to be a fact that Stock companies are the more advantageous for the assured. Most who think so are willing to account for this result by arguing that the Stock management must be superior. That may be a good reason, but we will exhibit a better; one that exists as a necessity in the very constitution and method of working of the two kinds of companies.

• All Insurance Companies must have Unreturnable Investments.

All Insurance Companies must invest *permanently* a certain amount of capital in furniture, making agencies, advertising, &c. for the purpose of establishing themselves. Some of these *permanent* investments will be tangible, and can be counted as assets, some of them just as useful, or even more so, at least absolutely necessary for establishing a company, are *intangible* and cannot be counted as assets, although the expenditure or investment would be recognized and paid for if a company desired to sell out its interests. Both these tangible and intangible kinds of investments it must be remembered are *permanent*, and *cannot* therefore *be returned* to whomsoever invests them.

Observe that the *permanently* invested capital of which we now speak is entirely distinct from any "capital" invested for the purpose of obtaining an interest or rent income which capital may be handled at any time; it is also distinct from any "guarantee capital" so called, for although that may be at first used for estab-

lishing a company, its use for that purpose is *temporary* and it is to be replaced from the premiums of the assured, and may be returned to those who furnish it, and therefore is not *permanently* used. Nor is this *permanently* invested capital to be considered as "sunk." The effort to invest, may cause some to be "sunk," but that of which we speak though in part intangible, has a living, valuable effect. Nor is this *permanent* investment to be counted as current expenses as if it must be repeated each year. It is, to be sure, usually counted as current expenses in the Mutual Companies, and in the State Report it is also thus counted against all Companies, which makes the current expenses of a new Company appear very large in comparison with those of an old Company; which is not at all fair, since the latter should have only one kind, the small true current expenses, while the former must have two kinds, the small current and the large establishing expenses; the old Companies take advantage of this to show how economical! they are, while the Mutuals take advantage of the same erroneous idea to impress the belief that *they do not have any capital!!!* This is entirely wrong, since it produces a pernicious effect upon the public mind, and opens the door to downright imposition. It is allowed that it will sometimes be difficult theoretically to decide to a fraction whether an expense belongs to *current* expenses to be charged to the cost of policies of the year, or to the *construction* expenses, but practically there is no difficulty in making the distinction sufficiently accurate.

Who shall Provide the Permanent Investments?

The great question to be here discussed is, who, for the greatest benefit of the assured, shall furnish this *permanent* capital invested for the purpose of establishing a company?

Suppose that a Mutual, a Stock and a Mixed Company to do the same amount of business in the same manner as it regards management, require \$100,000 each, to invest *permanently*, for making agencies, advertising, etc., in establishing the company.

The Stock Company calls upon its stockholders for \$100,000 ; they respond and pay upon their subscriptions this sum, which is received by the company, *nothing being paid for collecting* : \$100,000 is wanted for use ; \$100,000 is paid by stockholders ; \$100,000 is received by the treasury ; \$100,000 *can be used*.

The Mutual Company from its essential constitution must draw its needed \$100,000 from its assured in the form of a part of a high premium, on the whole of which there is a commission and other expenses to be paid for collecting ; so that to obtain \$100,000 for its treasury, for use as *permanent* investment, it must draw a considerable more than \$100,000 from the assured, at least ten per cent. or \$11,000 more ; that is, it must draw at least \$111,000 from the assured. \$100,000 is wanted, \$111,000 *is collected from the assured*, \$100,000 only is received by the Treasury, \$100,000 *only can be used*. If the Mutual assured, instead of paying the amount of \$111,000, of which their company gets for use only \$100,000, should pay to stockholders eight per cent. interest for furnishing the \$100,000, the Mutual assured would certainly be much better off in the end, as the interest of \$100,000 at eight per cent. would be but a trifle more than the interest of \$111,000 at seven per cent., while in the end *the assured would save the whole of the principal to themselves*. (If they should pay a part of the principal to the stockholders the assured will still be better off, and if they pay the whole of it they will be no worse off than if assured in a Mutual company.)

If it costs more than ten per cent., as in fact it does, to collect the part of the premiums used in establishing a company, so

much the more per cent. can be paid to the stockholders without loss to the assured. But let us be very guarded. Suppose as above that only ten per cent. is paid for collecting, then it will be better to pay eight per cent. to the stockholders for investing the needed *permanent* capital. Cannot all the stock that is needed by any company be obtained at that expected rate of remuneration for the investment?

The use of the Stock plan to the assured is seen to be, that the stockholders advance the capital necessary for investment in establishing a company, in consideration of which the assured pay an interest on, but need not lose, the amount thus invested. In order to have the assured benefited by the capital of a Company, it must not be kept merely as a *temporary* "guarantee," but it must be used by investing it *permanently* in establishing the company, and should be *super-compensated* only in proportion as it is thus invested.

No Mutual nor Mixed Company yet Fully Established.

It may be said, that *after* a Mutual Company *is established*, the part of the premiums previously necessary need not be taken, and as the company becomes partially established, a corresponding part need not be taken. If taken, and returned minus expenses of collecting, a great wrong is committed, as there cannot be as much returned as could have been left in the hands of the assured. As no Mutual company in this country has as yet reduced its premiums we must conclude either that no one has established itself sufficiently to have any effect towards reducing premiums, or else that a great wrong is imposed upon the assured by taking from them the now excessive or not needed part of their premiums, subtracting from it the expenses of collecting it and then returning it thus diminished.

The boasted large "returns," "profits," "dividends," &c. of such companies are evidently no larger than can be afforded, for they might be much increased by leaving the permanent investment in the hands of the assured, as a Stock Company does.

All Insurance Companies have Permanent Unreturnable Capital.

Let no person hereafter say, as is sometimes advertised, that a "Mutual" company "has no capital." All companies have a capital, must have one *permanently* invested. It will be replied that what is meant is that there is no capital with which to divide the "returns." To be sure there is not. It is as said; the assured of the Mutual and the Mixed furnish the capital for *permanent* investment and lose it and its interest. *They get nothing in return for it* except the satisfaction of having aided in establishing a company and of being insured in it at a higher cost, both in the beginning and in the end, than would be necessary in a Stock company.

This relative loss by the Mutual, and this relative gain by the Stock plan of obtaining the capital needed for permanent investment are *inseparable from the plans*, and necessarily pertain or inhere alike in the constitution of each kind of Insurance Company, Marine, Fire, and Life.

This explanation will solve what has been a mystery to the minds of some persons, to wit: how a Stock Company can do business more satisfactorily than a Mutual that returns "all its profits to the assured."

The insinuations against the management of Mutual companies it is seen, have not been just, for although managed as well as it is possible for the Mutuals to be, and without any fault on the part of the managers, the Mutual cannot do as well for the assured as equally managed Stock companies. The defect is in-

separable from the plan. It exists necessarily, as has been said, in the financial constitution of the Mutual plan.

Every financial mind can now perceive that the method of raising or collecting the capital that Mutual or Mixed Companies need to invest *permanently* for construction account, viz : for establishing themselves, is expensive ; and that if Stock companies obtain their capital for *permanent* investment so much more cheaply than the Mutuals and the Mixed, they can from the interest of this difference in the expense of collecting their capital make a *super-profit* or *super-dividend* sufficient to satisfy any stockholder.

In brief, since the cost of the " Mutual " is greater than that of the Stock plan and since the cost of each is wholly paid by the assured, they ought to get insurance cheaper through a Stock Company.

Two tests that this argument cannot be gainsayed are submitted :

1st. The American Popular Life Insurance Company will pay \$50.00 for a refutation of the above argument, to be decided by three impartial judges selected in the ordinary way.

2nd. It will insure any " best " - class person at the same life premium charged by any first-class Mutual or Mixed Company, and will add ten per cent. to the assurance ; and will also agree to make on the whole of such assurance, all such per cent. of dividends as such Mutual or Mixed Company shall make on corresponding cases.

Stock Companies may make Returns.

It may be said that if the losses, expenses, &c., are smaller and the interest larger than was computed, the surplus will be returned in a Mutual company to the assured. Why cannot the same thing be done in a Stock company ? *Is it not done ?*

In this country the AMERICAN POPULAR LIFE will make, especially to its "best" and "better" classes of lives large *returns in advanced years*, which are *provided for in its policies*.

This arrangement is necessary in this Company, since the law requires that a higher premium shall be made upon the "best" classes than is really necessary to insure them. (See documents for explanation.)

If it is insisted that these "returns" preclude the name of Stock, the opposite will be stoutly maintained; at least the name of "Mixed" will be resisted certainly, for the American Popular asks only such *super-dividends* as it *justly earns* by *super-serving* the interests of its assured. What name more proper than "Stock" making *bonuses*?

It has been abundantly shown that the stockholders of a Stock Company do not need to draw anything from the "returns" in order to obtain satisfactory dividends. Some Stock Companies therefore promise to make their premiums so low that there cannot be any returns, in which case those who do not understand the philosophy of insurance, will often say, if premiums are so low that returns cannot be made, or if returns are made to the assured how can the stockholders be satisfied? It is now seen how that can be, to show which was the object of this dissertation.

Conclusive Proof that "Mixed," while having all the Disadvantages of the "Mutual," offer none of the Especial Advantages of Stock Companies.

In England the companies called "Mixed" are a variety of the Stock, while in this country, as will be seen, the Mixed are only a variety of the Mutual. A pure Stock Company may make "returns" to the assured, make its premiums so low that practically there will be no "returns," or it may retain them if they should exist, either of which will depend upon the conditions of the policies it issues. In neither case does it assume any of

the true functions or characteristics of the "Mutual" or the "Mixed," as worked in this country. There are two features constant, in which the Stock essentially differs from the other two kinds.

In a Stock Company the *stockholders* alone control the management of the company and subscribe the stock or capital *permanently* invested in establishing the company.

In a "Mutual" Company the *assured* or their representatives control its management and supply the capital *permanently* invested for establishing the company.

In a "Mixed" Company the *stockholders* and the *assured* jointly control its management, the *former* advancing the *temporary* "guarantee," often called "guarantee capital," and the *latter* supplying the true *permanent* capital invested in establishing the company.

The distinction therefore, it is clearly seen, instead of depending on the disposition made of "returns" that may never exist, depends upon *who controls* the management and *who furnishes* the *permanent capital*, conditions that must always exist, and which are different in each of the three kinds of companies. If the Stock companies are to be classed into those which do not and those which do make returns, the latter cannot be called "Mixed," as they would be in England, because those so-called in this country are a subdivision of the Mutuals, to which they closely assimilate.

A Mixed Company draws its \$100,000 from its stockholders *temporarily* and replaces it from the high premiums *drawn from the assured*, the same as in the Mutual; the *assured* therefore *furnish the permanent capital* for establishing the Mixed Company. This method, high premiums, and the fact that the law provides for having the Mixed become a Mutual, but does not provide for its becoming Stock, into which it could not be changed, conclusively show that the Mixed is only a variety of the Mutual, and

has no kinship to the true Stock. Indeed in its inception the Mixed method was in this country but a temporary expedient for organising a Mutual Company. Therefore in the present comparison with the Stock plan, a Mixed Company is to be considered in all respects as merely a variety, usually, the most expensive, of the Mutuals.

The distinction between the Stock and the Mixed companies in this country is also shown by an illustration, as follows :

When capital has been invested by Mixed companies in intangible ways so that it cannot be reported as assets, it has been said in the language of the authorities of one of the States, to be "impaired," doubtless because, if the capital of a "Mixed" company is used in this way it is "impaired," and must be repaired or it is illegitimately used. But in regard to a Stock company this expression is wrong, since the capital was subscribed for use in this way. If it is not thus used *a corresponding amount must be taken from the assured* ; to avoid doing this was the very object in view, when the capital was subscribed.

Many, not understanding insurance language, think that if the capital is said to be partly or wholly "impaired" it has been used wrongly. If judiciously applied it is not, it is in the process of the most profitable use ; and the money of either the stockholders or of the *assured* must be so applied. In one case the assured lose only the interest, and in the other they lose the interest and principal. It must be remembered constantly that all companies must make these *permanent tangible* and *intangible* investments, and that if they are judiciously made they are the most *valuable investments* that a company can make. If any Stock capital is said to be "impaired" the expression ought to mean that it is in use most profitably for the assured.

Again, a conclusive distinction is to be found in this ; usually the State Reports account the so-called Capital, "guarantee," properly speaking, of a Mixed Company as a "liability" since it is liable to be returned and should be. Stock Capital not being thus liable, should not be thus accounted, but should be con-

sidered as used or as a surplus; at least it is "liable" *only to the use of the assured*, not to that of the stockholders nor to be taken away by them, and has not, therefore, one "liability" to which that of the Mixed Companies is liable; a distinction and a difference that the assured can readily appreciate, as a decided separatrix. A Stock Capital can properly be accounted a liability no more than the Capital of any Stock Company in active use.

A marked distinction between a Stock and a Mixed company is strikingly shown by this, that sometimes the latter have been organized without any cash capital, the "guarantee" consisting *entirely* of the *notes!* of the so-called *stockholders!* Of course no part of this kind of capital could be used in *permanently* establishing a company. In other cases part cash has been paid and the balance of the so-called "guarantee" has been eked out by the *notes!* of so-called *stockholders!* The virtue of this whole category of operations is shown by the fact that these so-called *stockholders!* have received "dividends" on their *notes!* all the same as if they had been cash. We are not aware of what *per cent.* such a dividend may *properly* be called! we do know that every cent of it is most unjustly drawn from that which should go to the assured, or rather should be allowed to stay with them.

But as the Mixed companies, even when the "guarantee" is all cash, *draw the same premiums from the assured as the Mutuals do*, and cause the *assured to furnish* all the capital for *permanent* investment in establishing the company, in the same manner as the Mutuals do, there is no way in which the stockholders in a Mixed company can obtain any more than the legitimate interest of their "guarantee" capital advanced temporarily, except by taking an extra per cent. from what should be returned to the assured.

Again, most "Mixed" use the part "note" or the "loan" plans: the Stock never does. Why not? Can more cash be paid than is received? Only "half" as much as if "all cash" premiums are taken; that is clear. But current and establishing expenses are the same in each case; therefore their ratio will be just double! where *premiums are half cash*, which is

just doubly wrong. "What a goodly outside seeming falsehood hath." The plan is dying as fast as it can get strength to die; killed in its own household, which is changing as fast as possible to "all cash."

CONCLUSIVE PROOF

That the Management of the Stock will be Superior upon an average.

Thus far, we have discussed only the results necessarily flowing from the inherent financial constitution of the two plans. In a brief space, we can equally well show that the management of the Stock companies, upon an average must, from the necessary constitution of human nature, be superior for the assured; most people believe this, induced by their intuitions.

The Hon. William Barnes, Superintendent of the Insurance Department, in his Report for 1868, in his usual felicitous, but pointed style, remarks: "It does not always follow, as is sometimes supposed, that a Mutual Company is the most profitable to the assured." Probably it does not, as we have seen; indeed Mr. Barnes might have expressed himself still more emphatically, considering that both the necessary *financial constitution* of the two plans, and the necessary *constitution of human nature*, favor the Stock and are opposed to the Mutual plan.

A forcible writer on Insurance plans says: "Will a Stock Company proper, be as likely to admit short-lives as a Mutual one? Will not the personal interests of the 'Proprietary' or Stock Company take greater heed and watchfulness than the officers of a 'Mutual'? A very few short-lives discarded will make a vast difference in the results; more than a Stock Company should crave. The success of the English Companies is doubtless owing to the fact that most of them are Stock, and therefore careful; while the increasing carelessness of the

American Companies in insuring poor lives, is equally owing to the fact that most of them are 'Mutual,' and their officers chiefly anxious about the amount and not the kind of business done."

The point taken is good, is decisive; but we find it sustained fully by the following extract from Grierson's "Underwriters' Weekly Circular." We omit the names of Companies.



"INTERESTING STATISTICS OF LIFE INSURANCE. Compiled from the last published Report of Massachusetts Insurance Commissioner, showing the ratio of claims by death to policies issued during the same twelve months by the leading Life Insurance Companies.

Name of Company.	Ratio.	Persons Insured.	Name of Company.	Ratio.	Persons Insured.
American Popular, (Stock,)	-	-	-	.06	1667
* * * * *	.21	476	* * * * *	.28	357
* * * * *	.20	500	* * * * *	.42	238
* * * * *	.32	313	* * * * *	.14	714
* * * * *	.11	909	* * * * *	.09	1111
* * * * *	.30	333	* * * * *	.32	313
* * * * *	.30	333	* * * * *	.38	263
* * * * *	.41	244	* * * * *	.29	345
TOTAL RATIO, .26 or one death in every 385					

"In 1868 the American Popular, as we have already said, suffered no loss from the death of any person taken during that year. It is an important point to observe the ratio of mortality or death rate. The American Popular insures mostly the class always most reluctant to insure their lives, the longest-lived class, as in that Company alone their interests are not made to subserve those of the short-lived class.

"Its aggregate rate of mortality is below that of any other Company, arising from the fact that the largest number of the insured belong to the "best" classes.

"The Company's system of classification now under trial for three years, has been proved successful beyond even anticipation."

 ONLY STOCK COMPANIES CAN CLASS THOROUGHLY. That fact alone would decide the question in their favor. 

CONCLUSION.

It is now apparent why Stock premiums can and should be materially lower than those of the Mutual or the Mixed; the *former* can be lower not only with equal but with *greater security* to the assured. It has been noticed by every one that they are lower, but anxiety is sometimes manifested lest security should be correspondingly diminished. Officers and agents of Mutual and Mixed Companies, perceiving that the higher premiums are absolutely necessary in their own and not understanding the philosophy of the matter, are very apt to think, at least to assert, that Stock premiums are too low. Let us therefore illustrate that they are not.

In a Mutual or Mixed, whole-life premiums must be composed of: 1st, a part to cover immediate losses by death; 2d, a part to be kept as a reserve; 3d, a part to pay current expenses; and 4th, a part to be invested in construction expenses, viz: *permanently* invested in establishing the company. In a Stock Company the premium will be composed of the first three parts of the "Mutual," and a fourth part which need be merely the interest of the fourth part of the Mutual, since the principal is furnished or invested by the stockholders.

Chance for the Benevolent.

It is now evident that if a person has such a benevolent disposition that he wishes to do something for coming generations, he will find an ample opportunity for the exercise of his charitable feelings by insuring himself in a *young* Mutual or a *newly organized* Mixed company. If he has not quite so much benevolence or not quite so much money, yet if his heart warms toward the officers and others interested in transacting life insurance business upon the "noble principle of mutuality," "all the

profits returned to the assured," &c., and desires to bestow upon them something more than the real cost of insuring himself in a Stock company, let him select an *old* "Mutual" or "Mixed," which being partially established ought not to make the cost upon him as heavy as if he had begun with it; and can therefore make to him large returns frequently; always remembering that these large returns, with the addition of proportionate figures to represent what has been paid as cost of collecting, is the exact measure of the excess that has been taken from him originally. So that the larger the returns the larger the excess, and the more he has paid for collecting it, and returning *a part!* of it. The Stock company has no excuse for taking the premiums that will first or last allow of such returns. If a person enters a new Stock company he will pay no more than if he enters it at maturity; the *stockholders furnish the construction funds*, and the party assured pays merely for the *use* of them. He will save investing anything for the benefit of others, and they will only have to pay as he does, for the use of what is advanced for their benefit as well as for his.

It is also evident that some are self-deceived, not aware of the true effect of the "Mutual" plan in increasing the cost of insuring, or we should not so frequently see the captions "wholly Mutual," "entirely Mutual," since that is the last point of which an intelligent insurance man would boast.

It is seen that the tables are turned, and that the "Mutual" not the Stock companies are the "cormorants that devour the substance of the widow and the fatherless." If benevolence is to be attributed, the Stock companies can claim it, since they show it in results if not in motives. But benevolence in business is a misnomer, the only use of which is to mislead.

The True Philosophy of Business.

In insurance as in all other business transactions there are, in fact, always two parties, the honest self-interest of each of which must be fairly consulted in order to have the business permanently successful.

The philosophy of all business transactions is that each of two parties has something that he wishes to exchange; the exchange is therefore advantageous to each. This is true of all fair business. The idea that one party only, can or should be benefited by fair business is an error. The idea that a party can make a series of business transactions to his own advantage merely, has no foundation in fact. One party may cheat another, but that is not business. The idea that a man can make a good bargain with himself is a delusion. The idea that a "Mutual" business can be done and all the profits go to one party, is a snare. It is quite as much so in "Mutual" insurance as in any other business. In it there are always two parties, and if one is kept out of sight, he can always be found by looking for him.

The true question in all business is, with whom can a party who wishes to make an exchange make it most advantageously.

Measured by these correct business axioms, the stock *must be* in all respects much superior to the Mutual plan.

Some will say "all will depend upon management, sometimes a bad theory well worked is better than a good theory badly worked." That is true. We believe that the Stock management will *average to be much the better*; while from the necessary financial constitution of each plan, the "Stock" must be the superior for the assured.

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